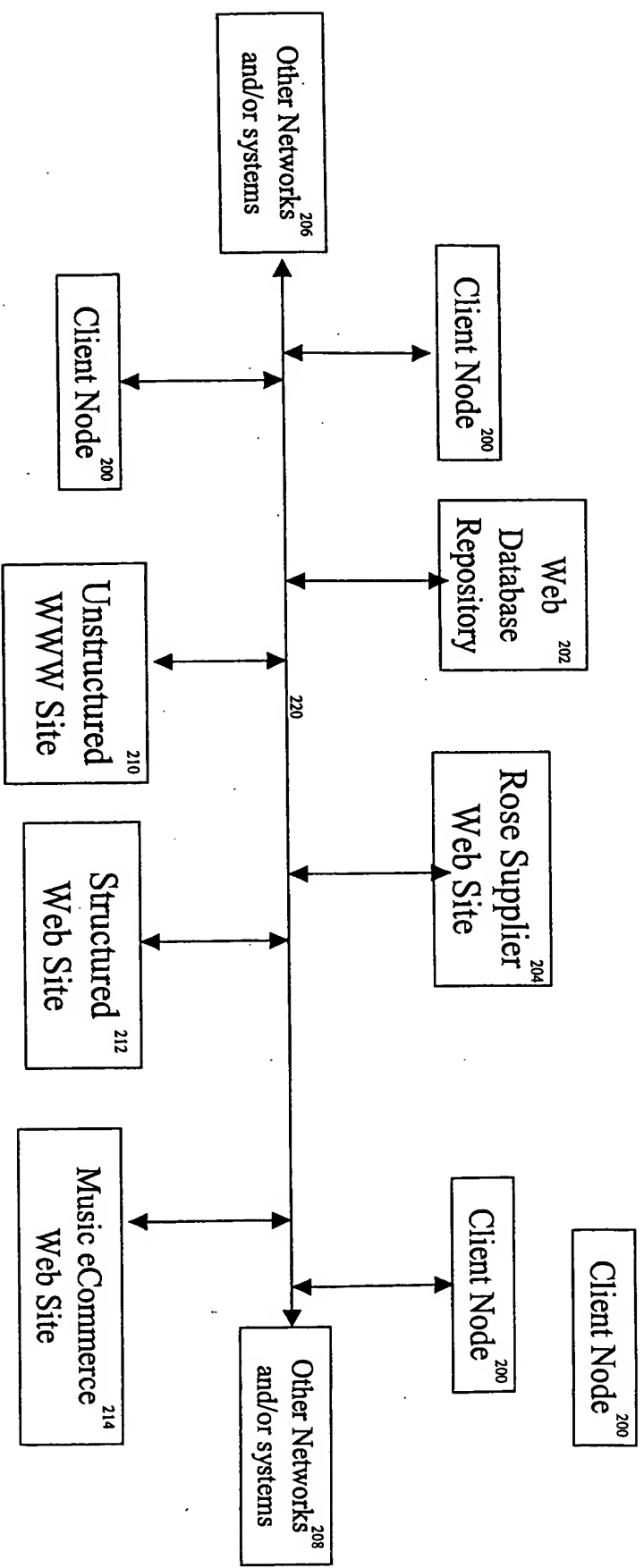


Computer Environment
Figure 1



Shows a typical example embodiment where the invention is installed into a plurality of Client Nodes extracting data from a plurality of data repositories.

Figure 2

Example WWW Page

Next County ³⁰⁰
Previous State ³⁰²

This text is of no interest to us. It could be contained in a separate table, frame or other HTML container such that we are able to identify its boundaries (ie the start and end of the text field) and such that we can determine that it is not anything of use.

\$55,000 for a great 3 bedroom 2 bath house. ML.S1721 ³⁰⁴

Banner Advertisement ³⁰⁶
both content and URL link changes between page accesses.

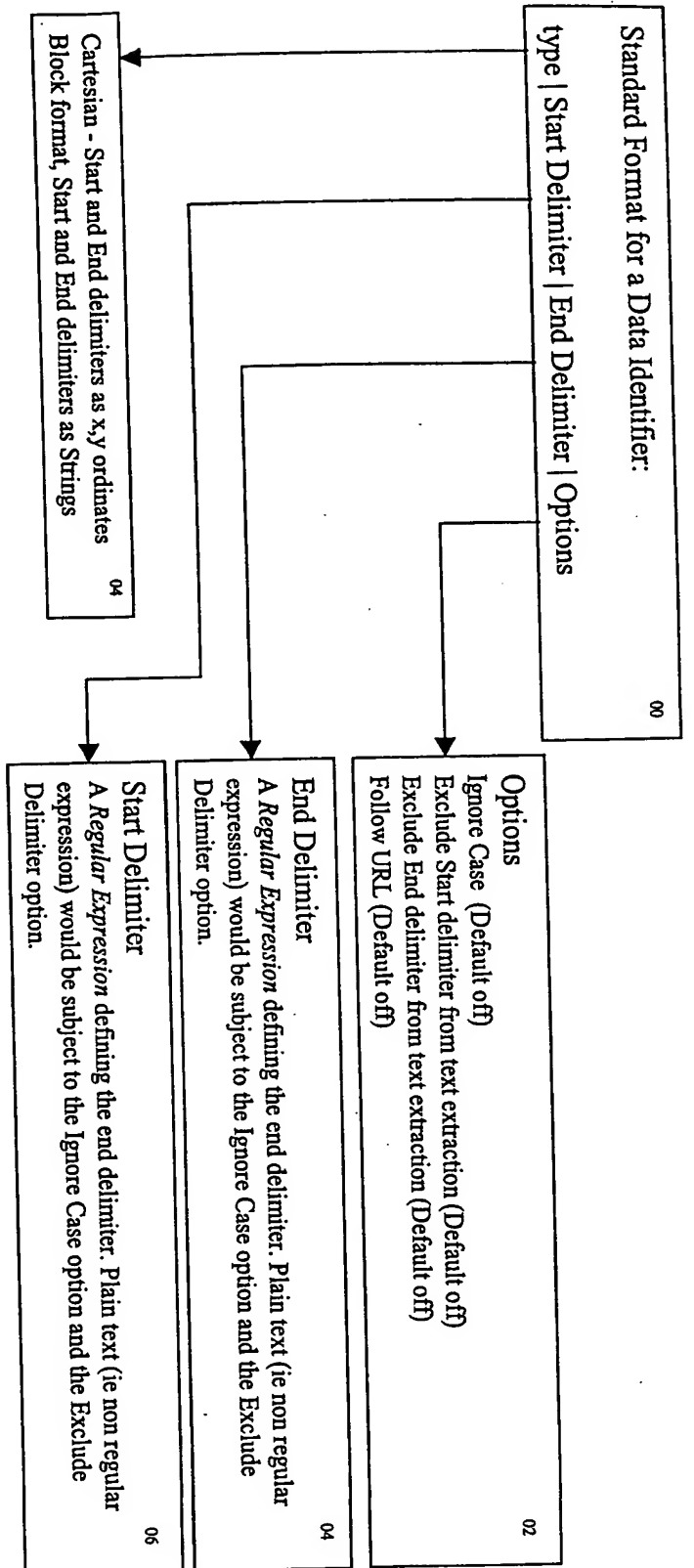
Mortgage ³⁰⁸
Calculator

Regional Information representing data of *no interest* as we are looking for Home price and descriptions and not information on the area. ³⁰⁸

Bargain at \$249,500 for this desirable 1 bedroom 5 bath house with ³¹⁰
large wet bar, pool and yard. ML.S1274

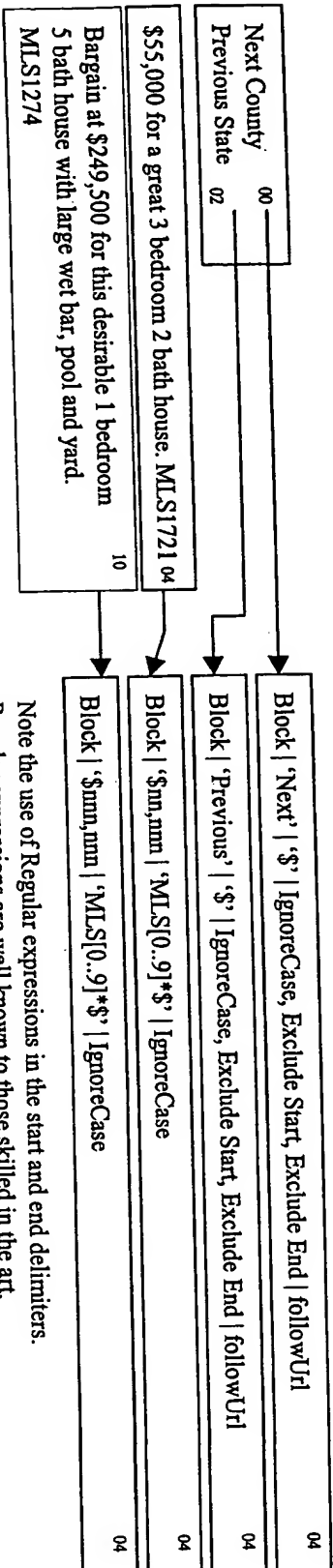
Example WWW page with data of interest and data of no interest.

Example WWW page
Figure 3



Text to Decode

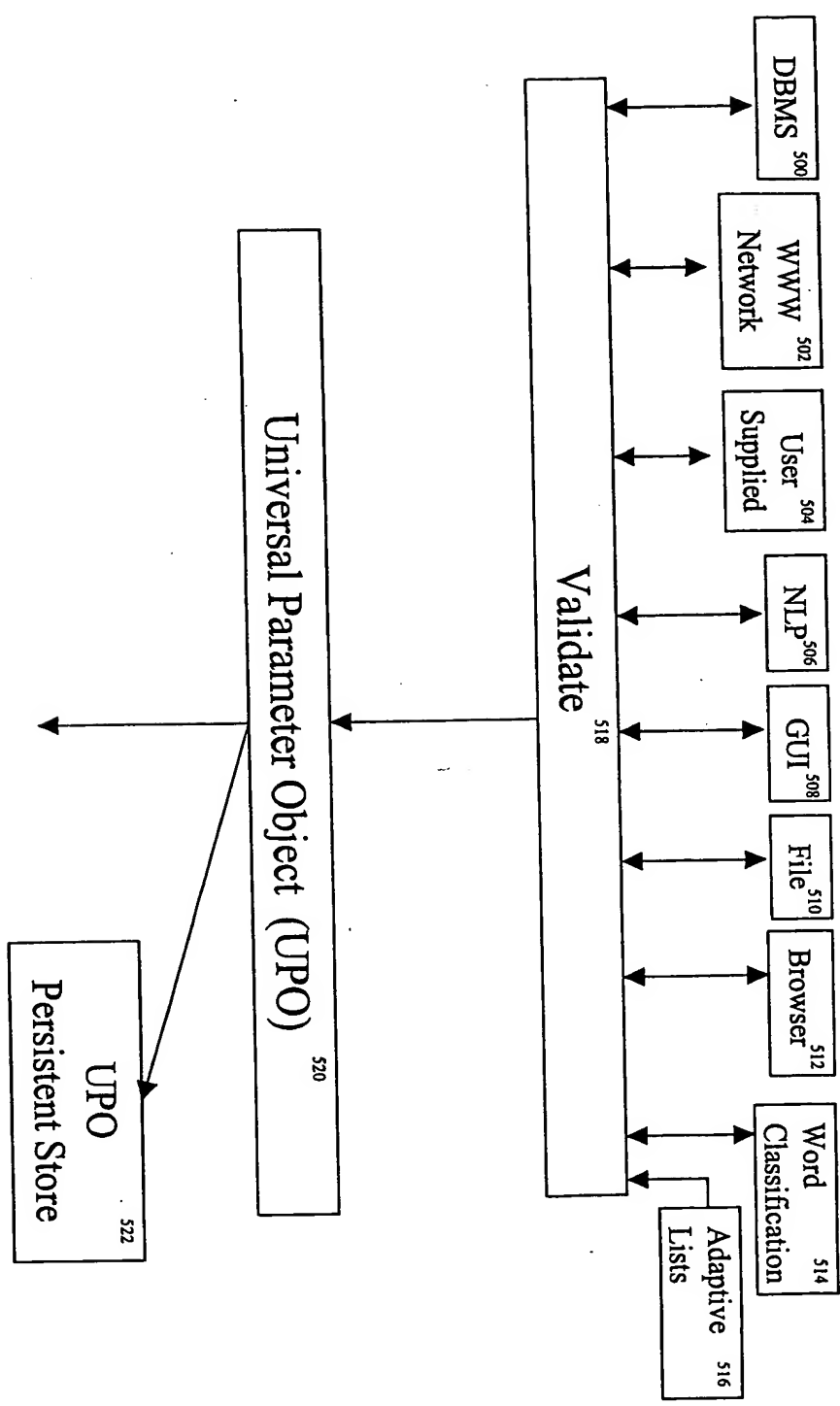
Example Data Identifier



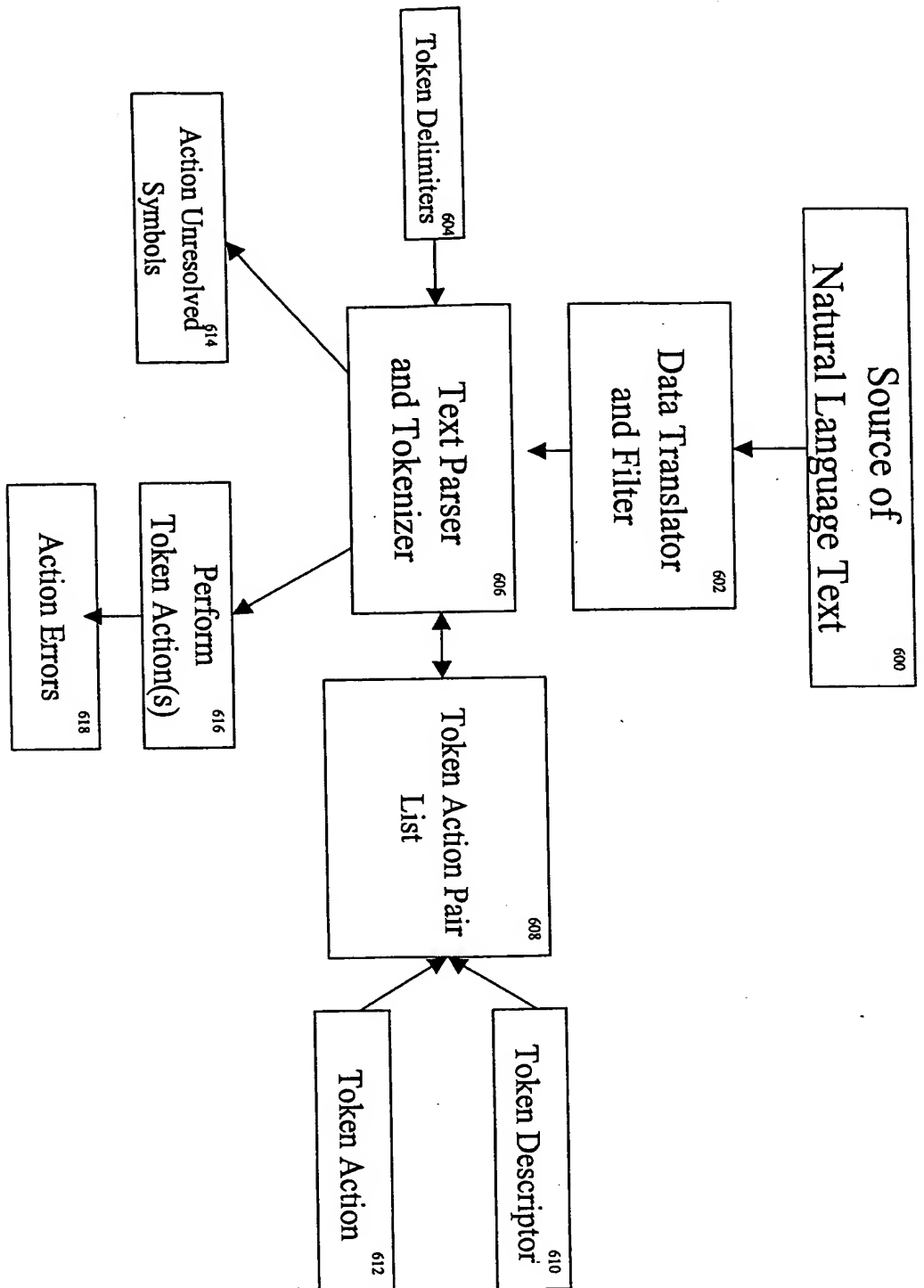
Example Data Identifier Usage

Figure 4

Universal Parameter Object (UPO)

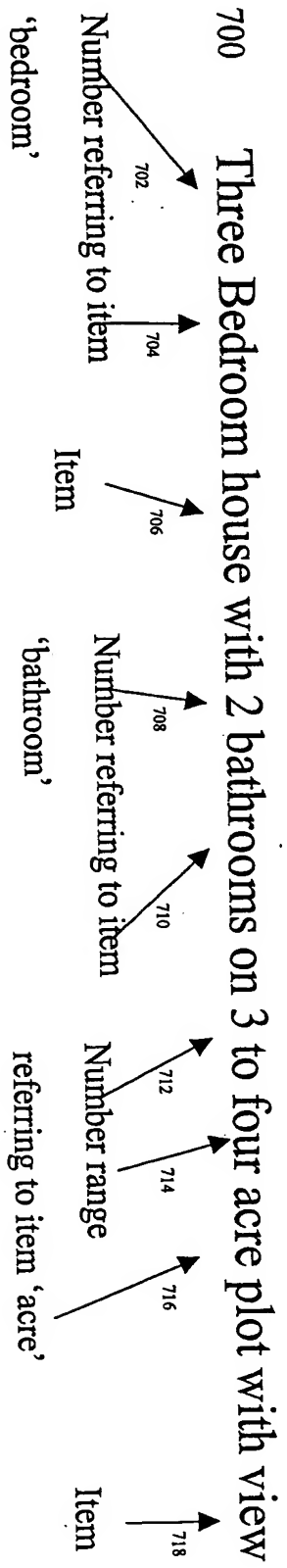


Universal Parameter Object (UPO)
Figure 5

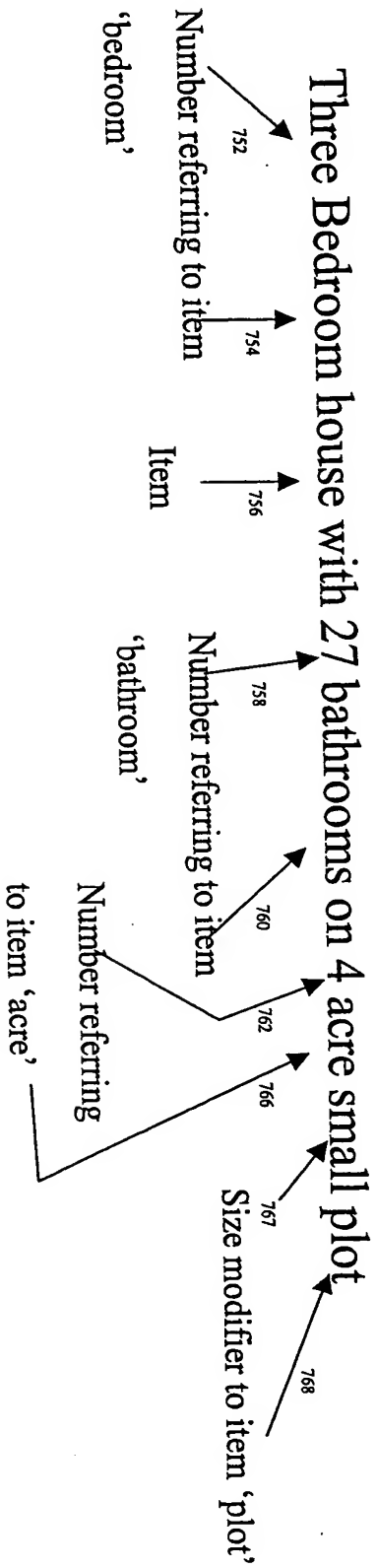


Natural Language Processor
Figure 6

An example of Natural Language with parameters:-

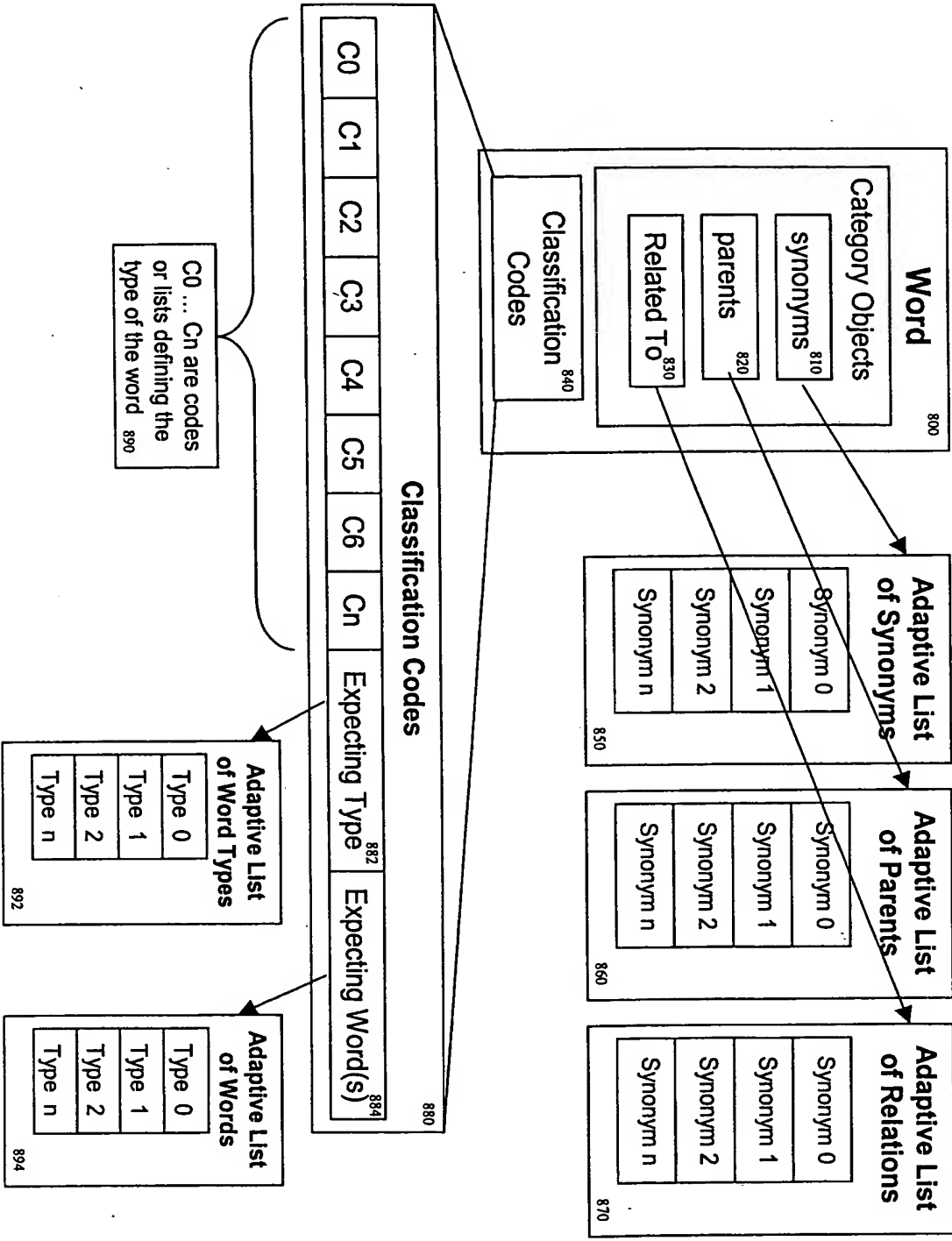


750 An example of Natural Language with improbable and conflicting parameters:-



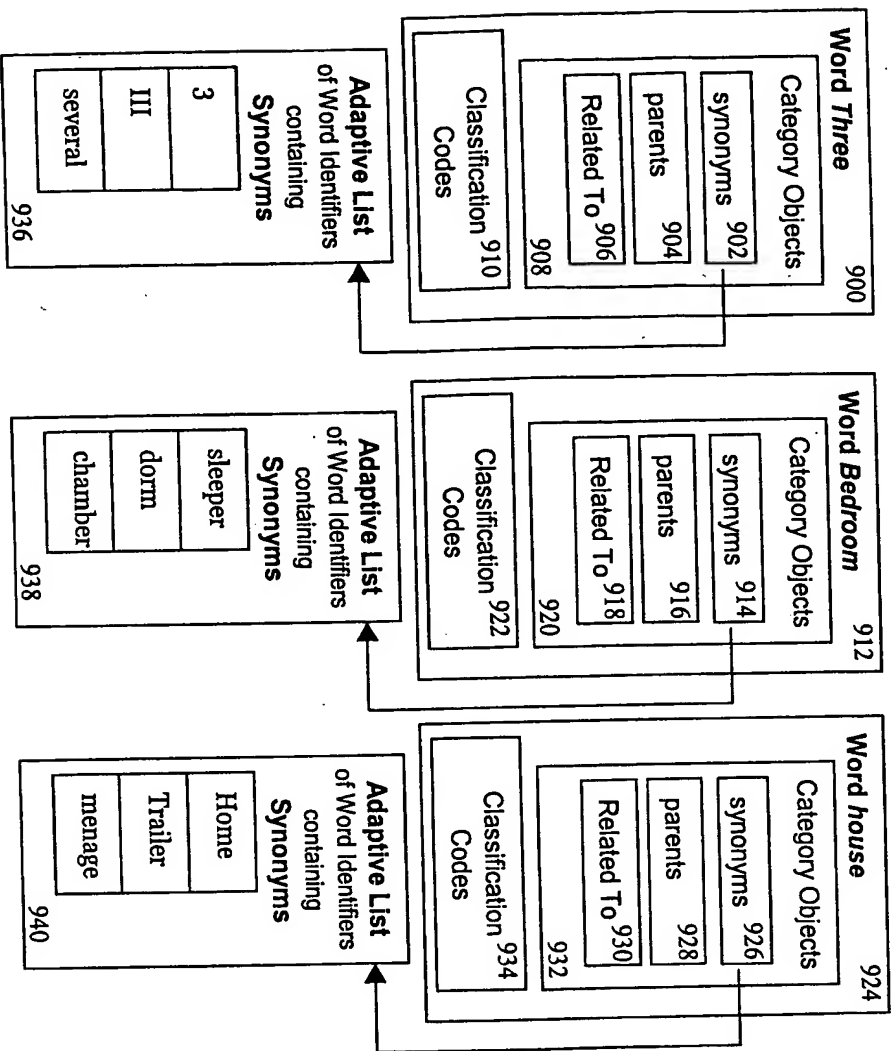
Examples of Natural Language
Figure 7

Word Identifier

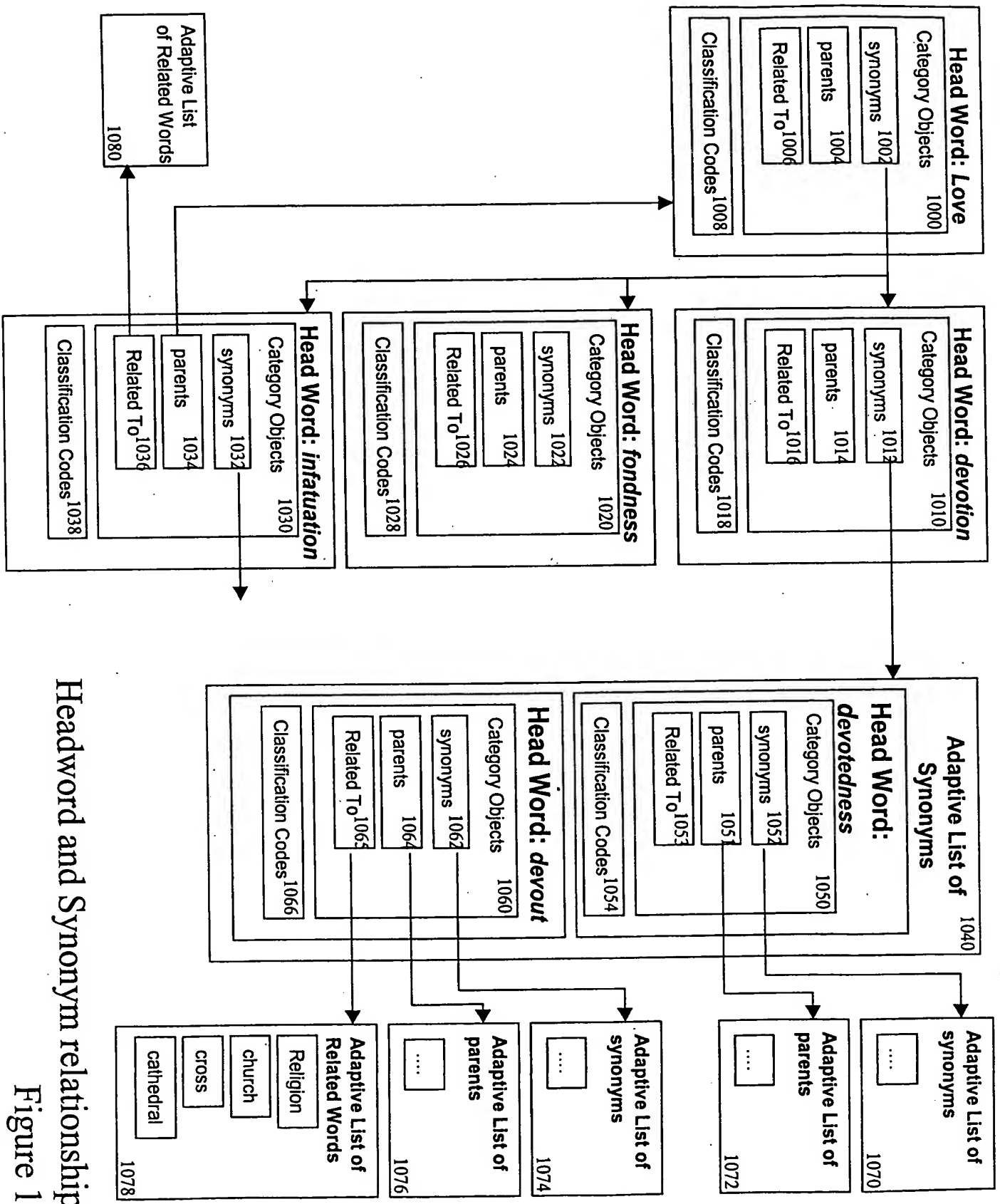


Word Identifier
Figure 8

Three Bedroom house with 2 bathrooms on 3 to four acre plot with view



Natural Language to Word Ident Mapping
Figure 9



Headword and Synonym relationships
Figure 10

Word Classification

Category Codes										1100
C0	C1	C2	C3	C4	C5	C6	Cn	Expecting Type	Expecting Word(s)	

Example word "cat" showing example categories it fits into. Such categories will vary between embodiments.

Target Word: "Cat"

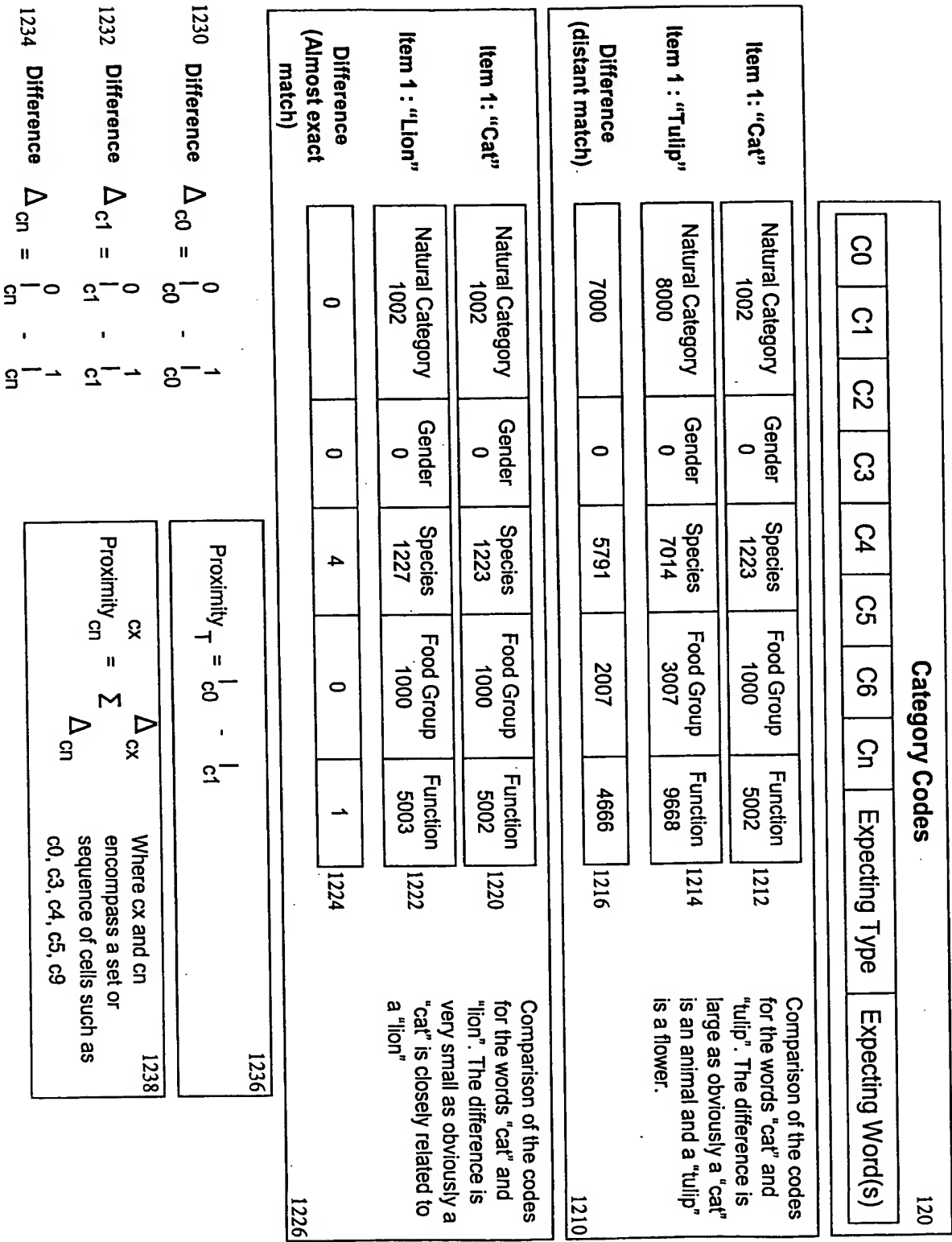
Natural Category	Gender	Species	Food Group	Function	Specific 0	Specific n
1002 1110	1 1112	1223 1114	1000 1116	5002 1118	1120	1122

Example Natural Category Codes	Example Gender Codes	Example Species Codes	Example Food Group Codes	Example Function Codes
Flaura (2000)	None 0	Felis catus (1223)	Carnivore (1000)	Sleeps (5002)
Fauna (8000)	Female 1		Herbivore (2002)	Worker (6000)
Mammal (1002)	Male 2			
Insect (1003)		Dogimus		
Reptile (1004)		Woofus (2002)		

The number, meaning and definition of categories will be dependant on the specific embodiment.

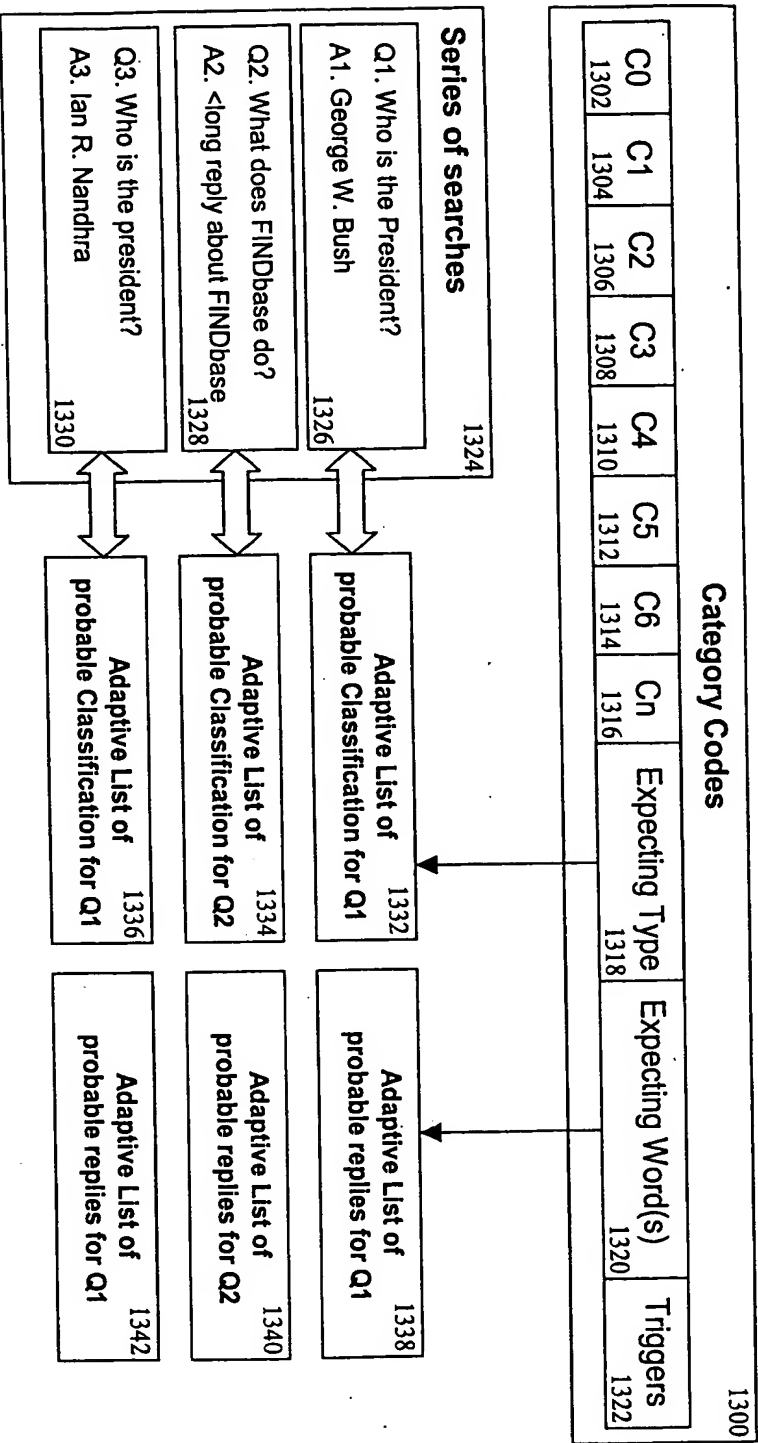
Word Classification Figure 1 1

Word Comparison



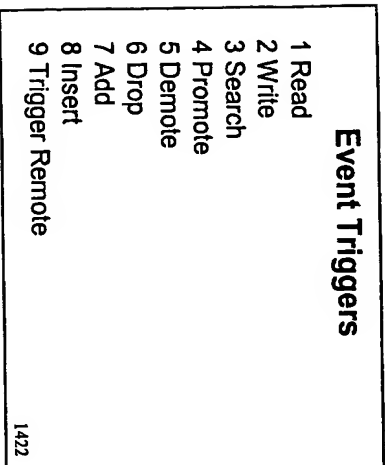
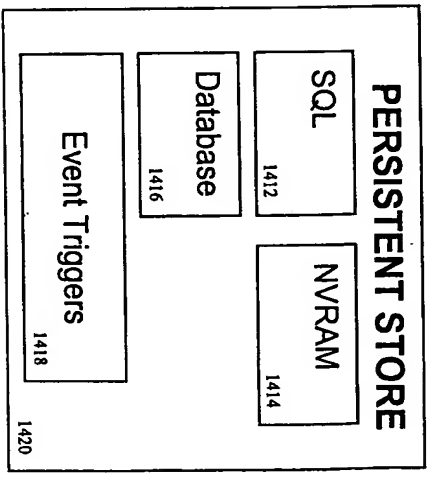
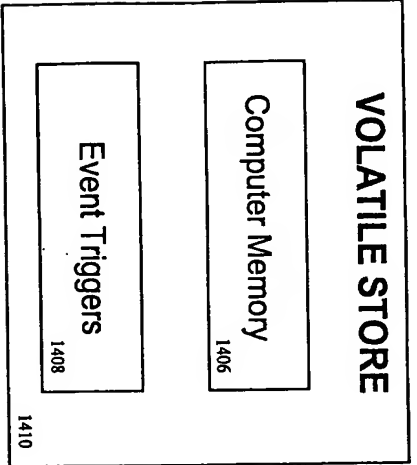
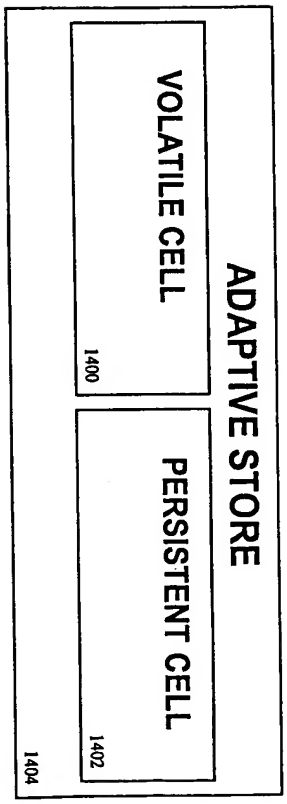
Word Comparison Figure 12

Word Expectation(s)



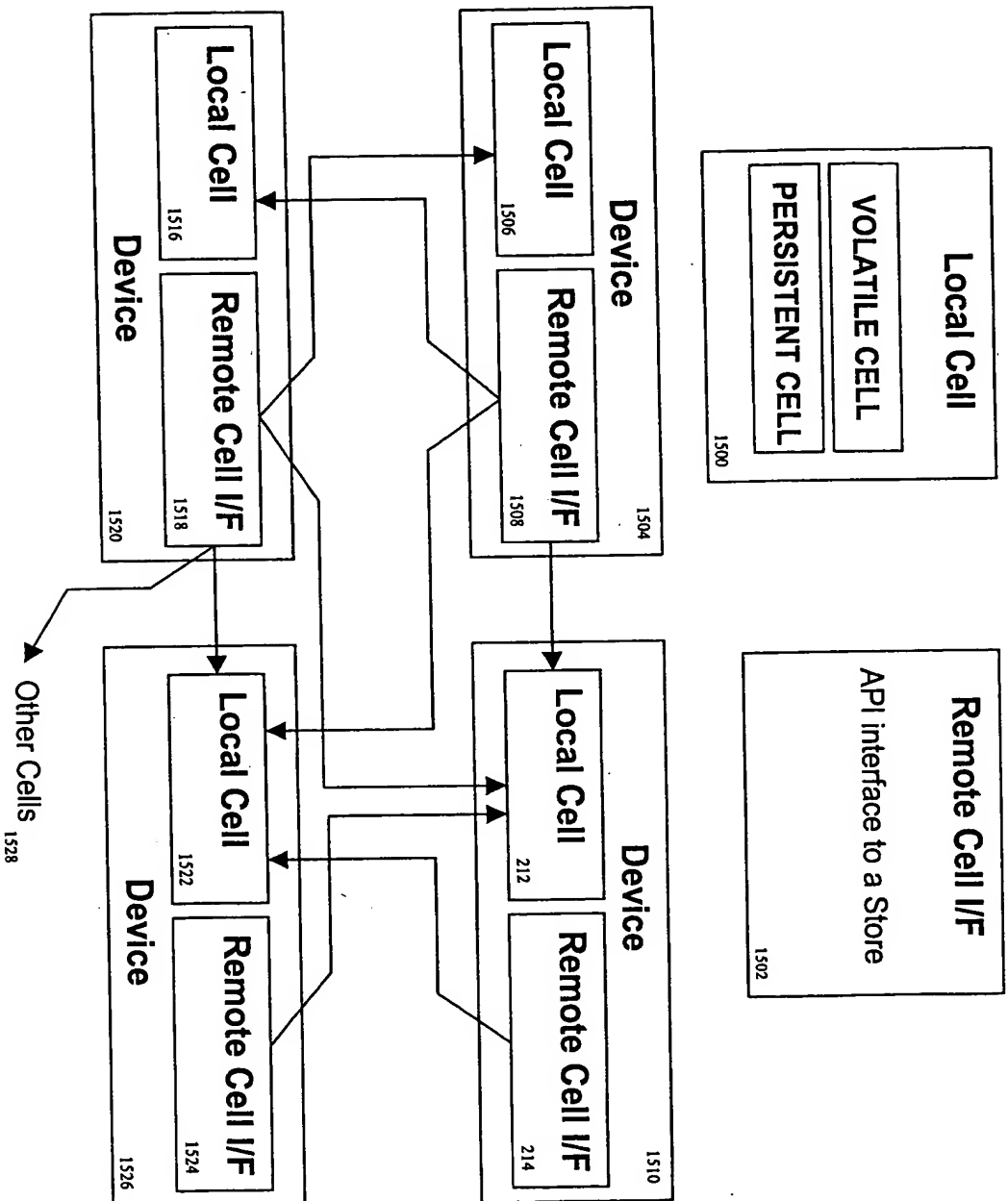
Word Expectations Figure 13

Basic Stores



Basic Store Types
Figure 14

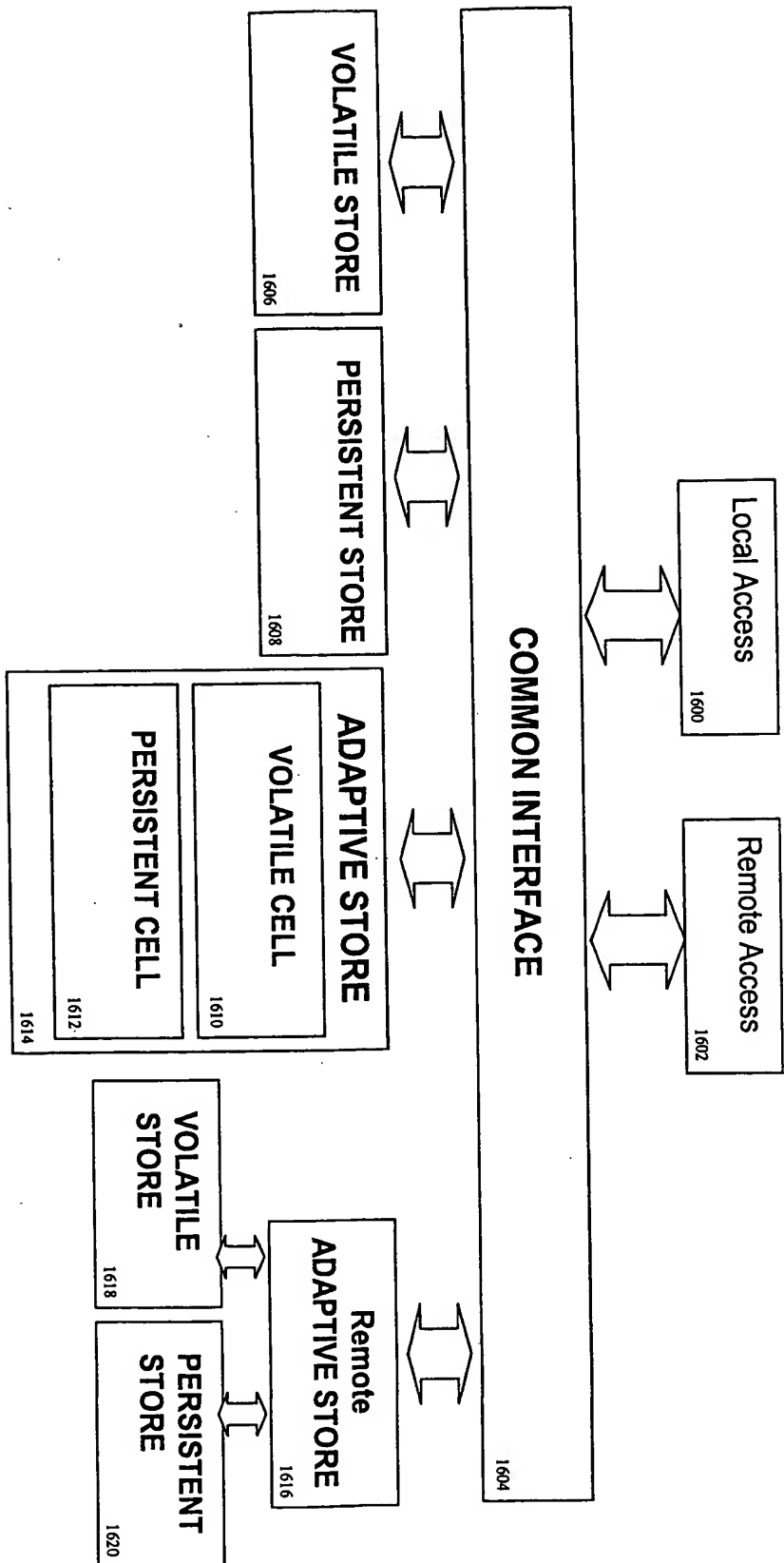
Storage Cells



Storage Cells

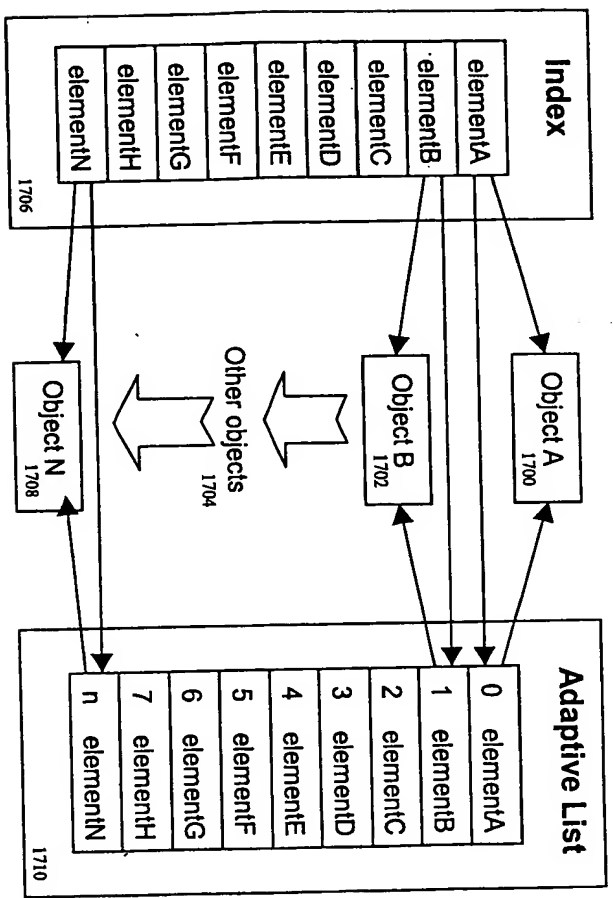
Figure 15

Storage API



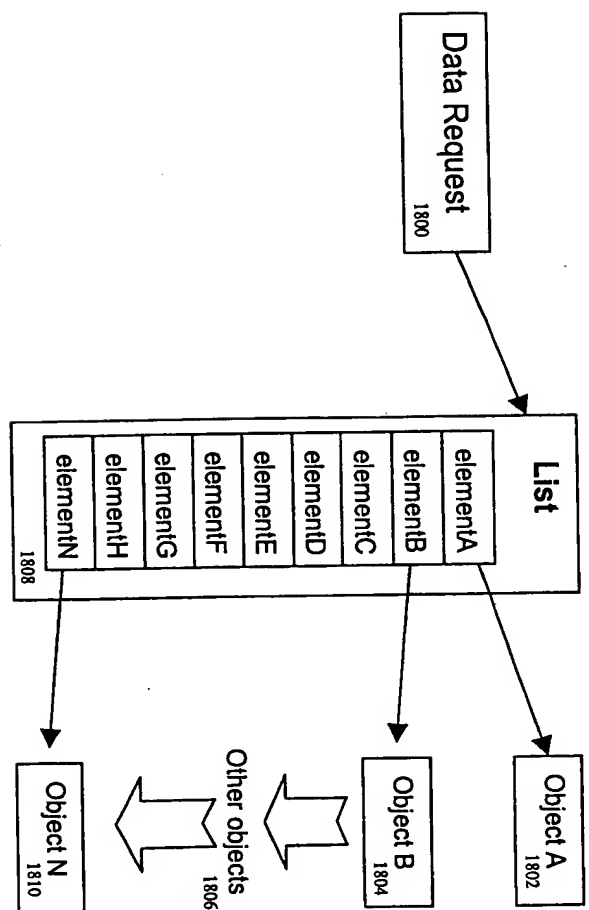
Storage API
Figure 16

Adaptive Store



Adaptive Store Indexing and List relationship

Figure 17



Adaptive Store - Bare Storage
Figure 18

Adaptive Store – Simple Accesses

Initial State of Adaptive List

0	elementA
1	elementB
2	elementC
3	elementD
4	elementE
5	elementF
6	elementG
7	elementH
n	elementN

1900

After 1st Search for element D

0	elementA
1	elementB
2	elementD
3	elementC
4	elementE
5	elementF
6	elementG
7	elementH
n	elementN

1902

After 2nd Search for element D

0	elementA
1	elementD
2	elementB
3	elementC
4	elementE
5	elementF
6	elementG
7	elementH
n	elementN

1904

After 3rd Search for element D

0	elementD
1	elementA
2	elementB
3	elementC
4	elementE
5	elementF
6	elementG
7	elementH
n	elementN

1906

After Search for element G

0	elementD
1	elementA
2	elementB
3	elementC
4	elementE
5	elementG
6	elementF
7	elementH
n	elementN

1908

After Search for element H

0	elementD
1	elementA
2	elementB
3	elementC
4	elementE
5	elementG
6	elementH
7	elementF
n	elementN

1910

After addition of new element Z

0	elementD
1	elementA
2	elementB
3	elementC
4	elementE
5	elementG
6	elementH
7	elementF
n	elementZ

1912

Least accessed element N dropped and replaced by new element Z

Accessed elements are elevated one level in the list and the element above is demoted by one element.

Adaptive Store Simple Access
Figure 19

Adaptive Store – Weighted Accesses

Initial State of Adaptive List

0	Priority 4 elementA
1	Priority 4 elementB
2	Priority 40 elementC
3	Priority 4 elementD
4	Priority 38 elementE
5	Priority 4 elementF
n	Priority 0 elementN

2000

After 1st Search for element E

0	Priority 4 elementA
1	Priority 4 elementB
2	Priority 40 elementC
3	Priority 39 elementE
4	Priority 4 elementD
5	Priority 4 elementF
n	Priority 0 elementN

2002

After 2nd Search for element E

0	Priority 4 elementA
1	Priority 4 elementB
2	Priority 40 elementC
3	Priority 40 elementE
4	Priority 4 elementD
5	Priority 4 elementF
n	Priority 0 elementN

2004

After 3rd Search for element E

0	Priority 4 elementA
1	Priority 4 elementB
2	Priority 41 elementE
3	Priority 40 elementC
4	Priority 4 elementD
5	Priority 4 elementF
n	Priority 0 elementN

2006

After Search for element B

0	Priority 5 elementB
1	Priority 4 elementA
2	Priority 41 elementE
3	Priority 40 elementC
4	Priority 4 elementD
5	Priority 4 elementF
n	Priority 0 elementN

2008

After addition of new element Z 2022

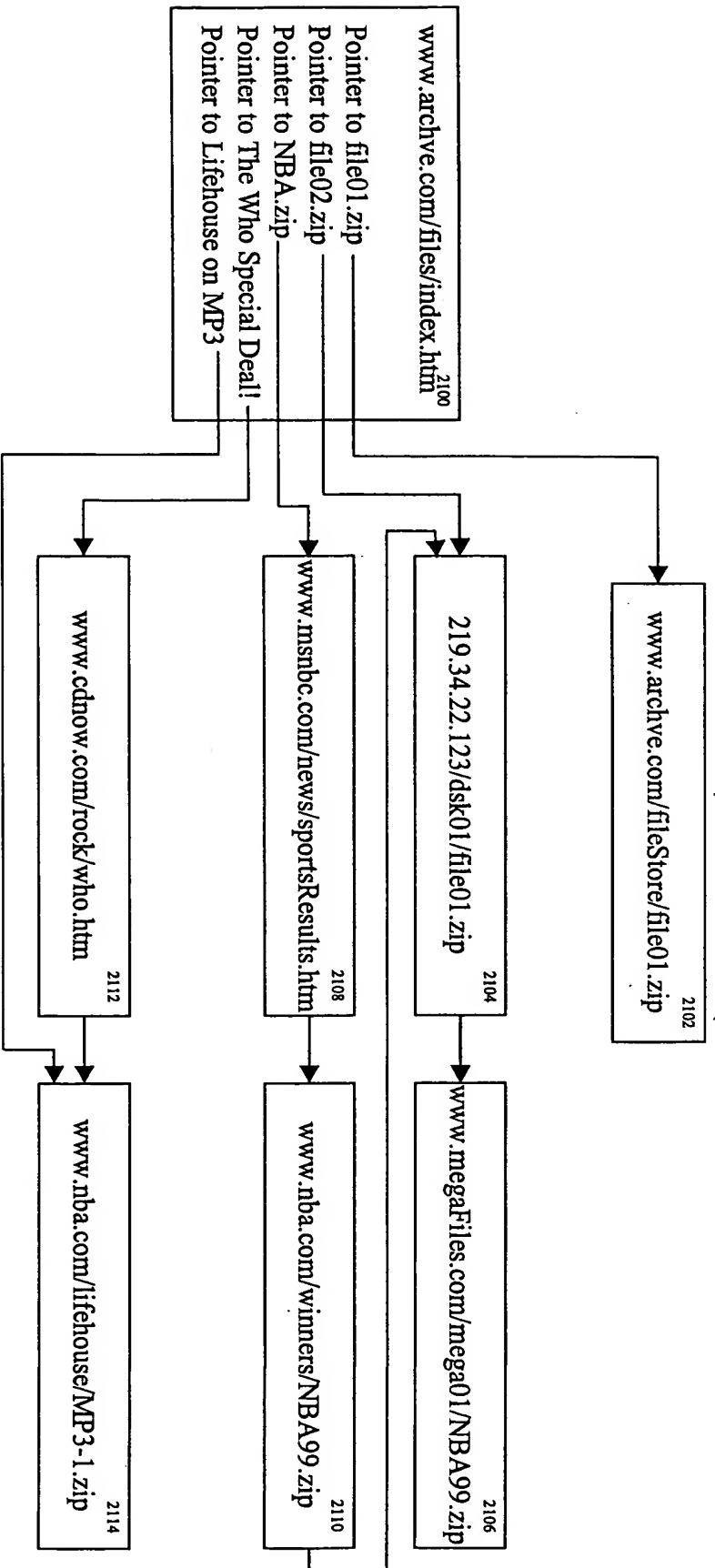
0	elementD
1	elementA
2	elementB
3	elementC
4	elementE
5	elementF
n	elementZ

2028

Least accessed element N dropped and replaced by new element Z 2026

Accessed elements have their weight values incremented. If the new priority value is greater than the element at location n-1, element n is swapped with element n-1 2024

Adaptive Store Weighted Access
Figure 20



Examples of how links to files can span different repositories on a Network such as the WWW and how such links may reference the same file.

URL Chaining and Indirection
Figure 21

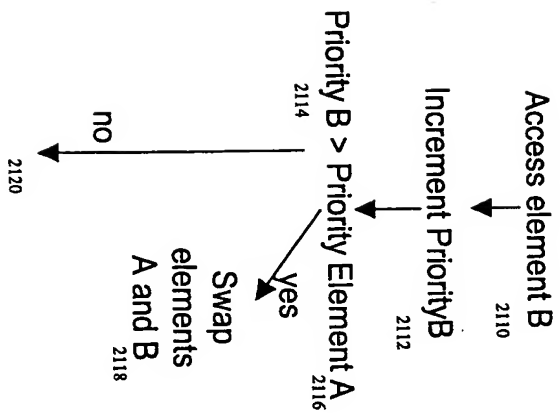
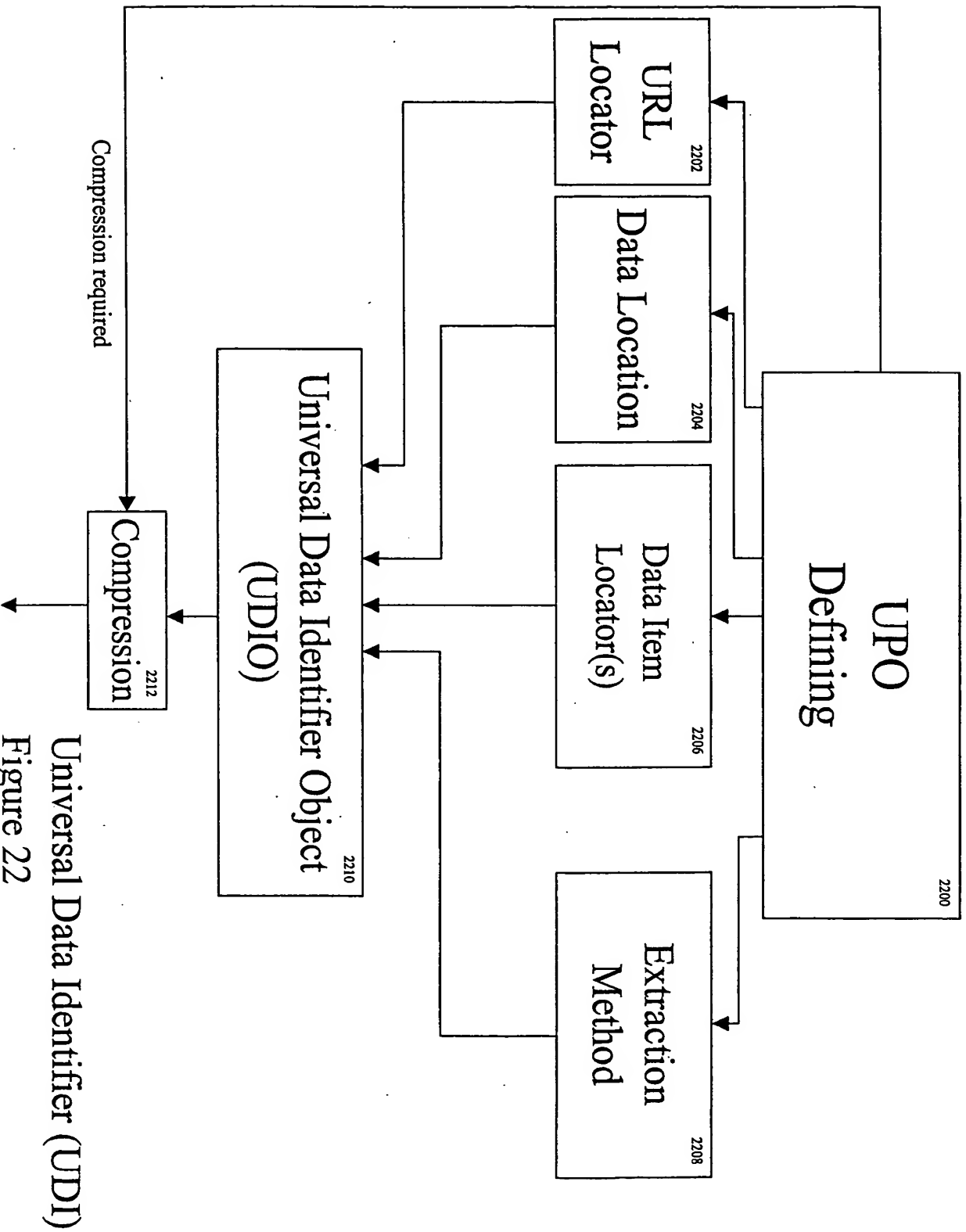
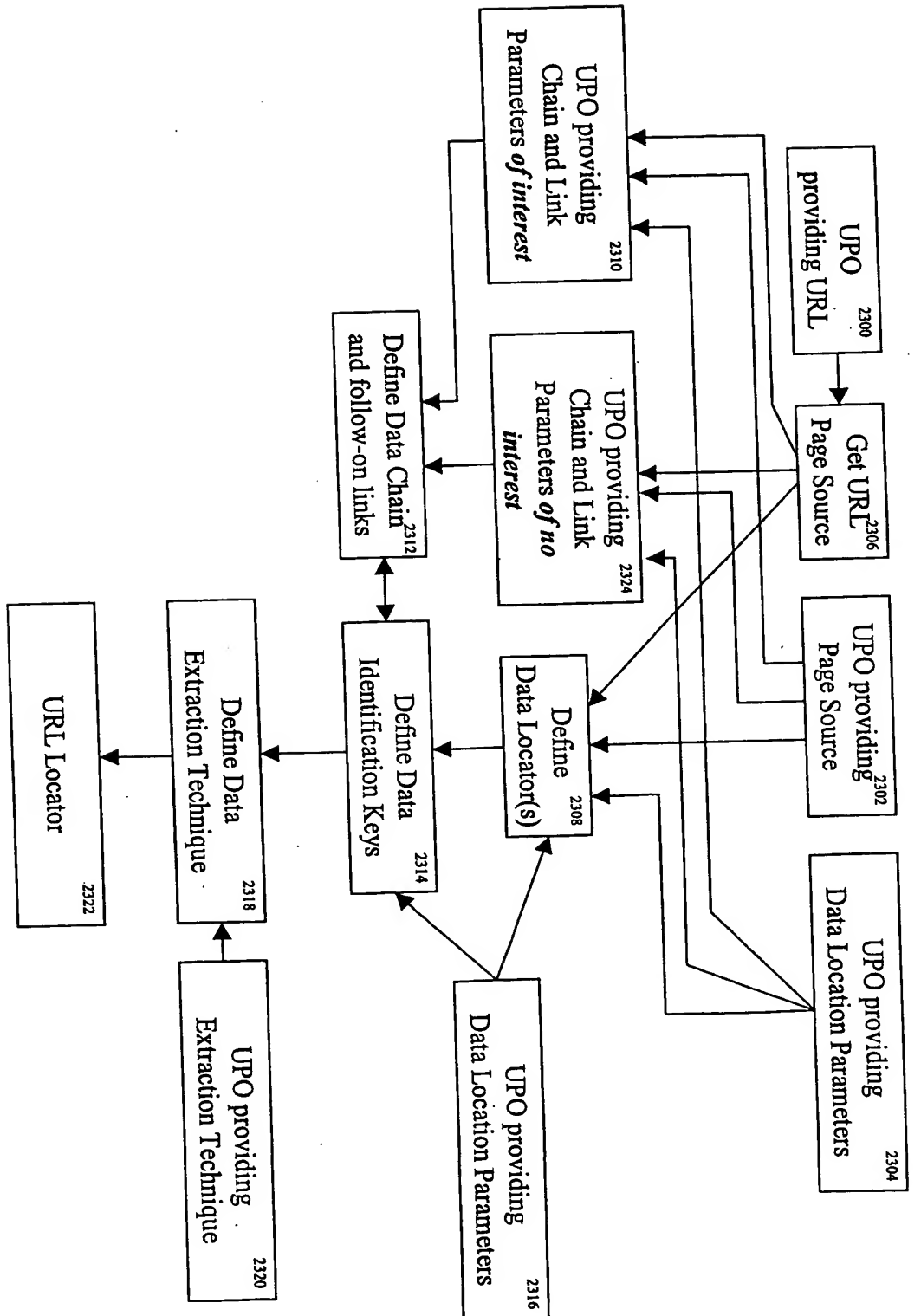


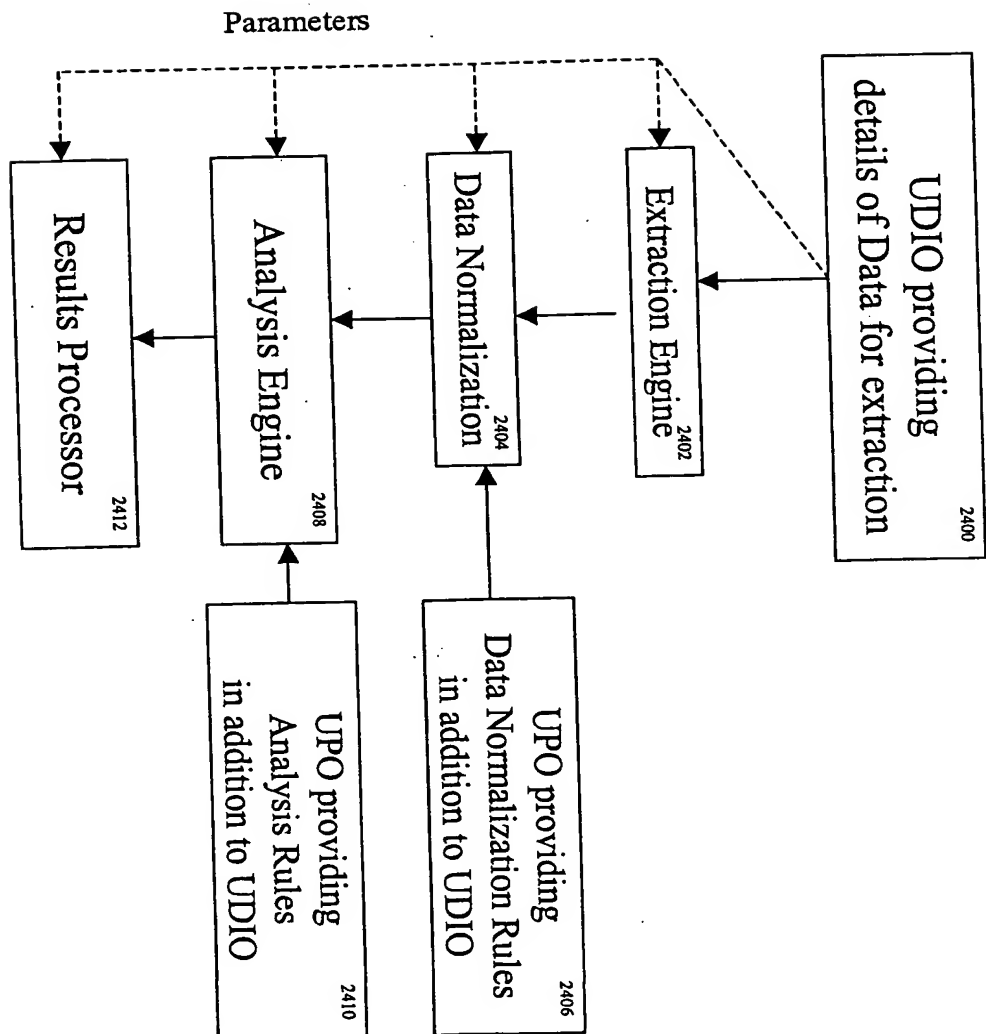
Figure 20-1

Universal Data Identifier (UDI)

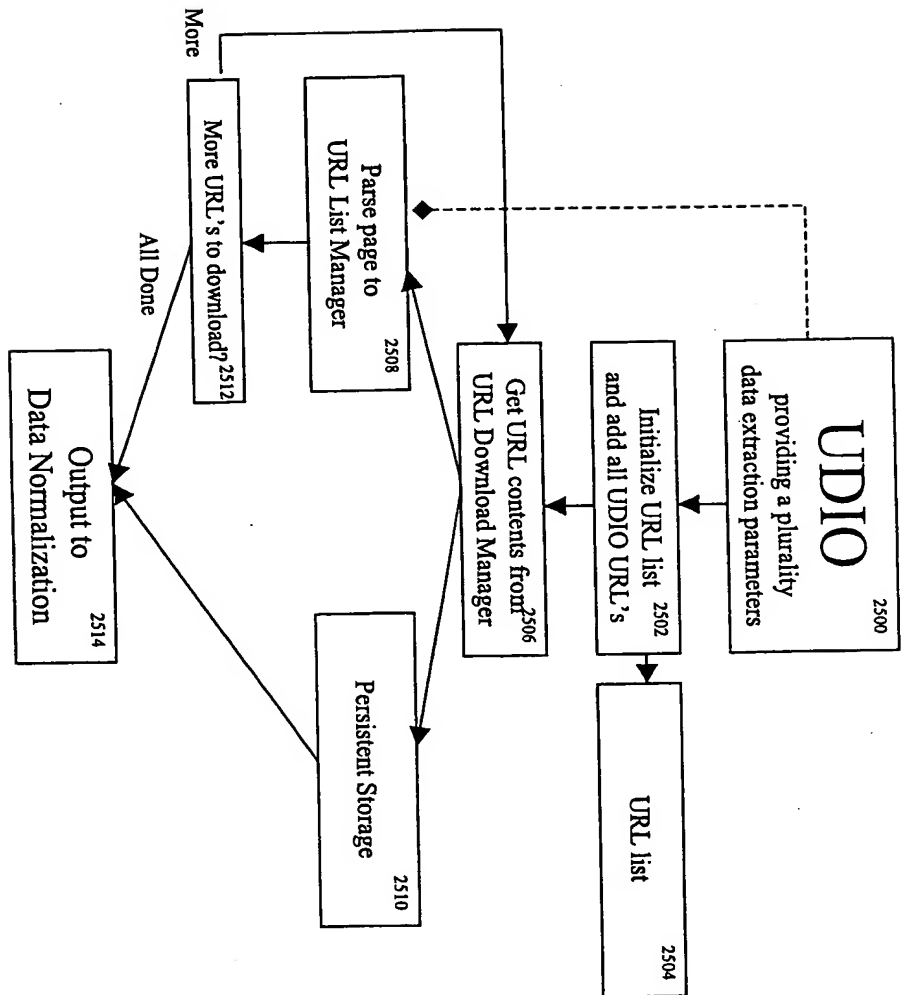




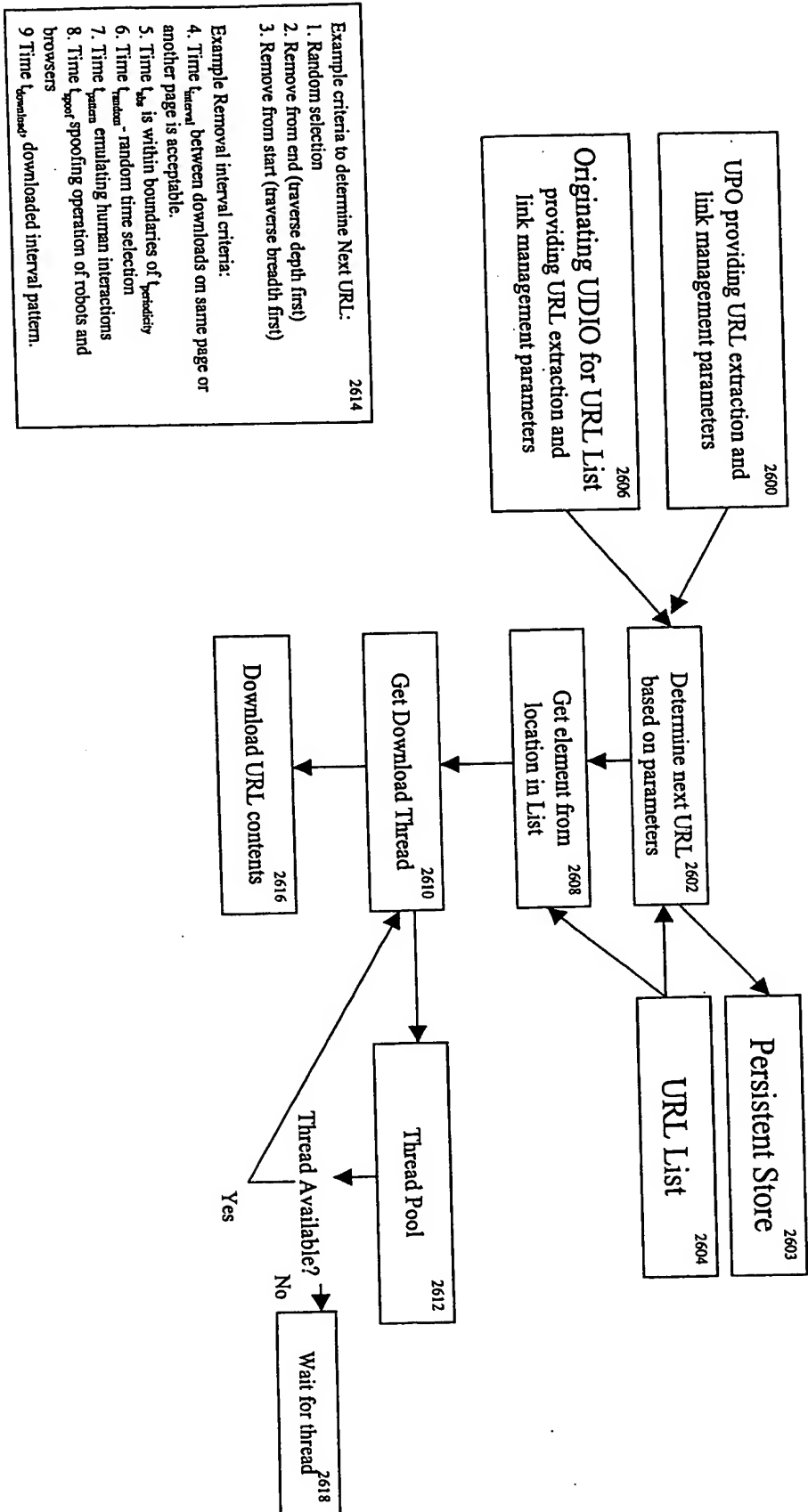
URL Universal Data Identifier
Figure 23



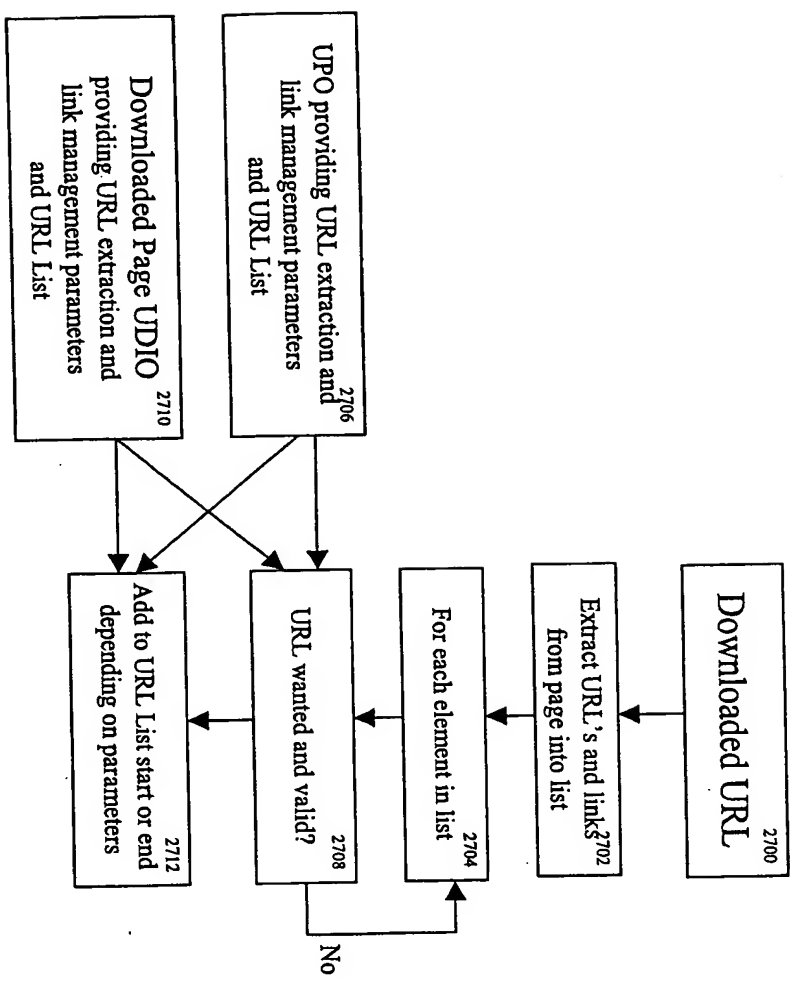
Client Data Extractor (CDE)
Figure 24



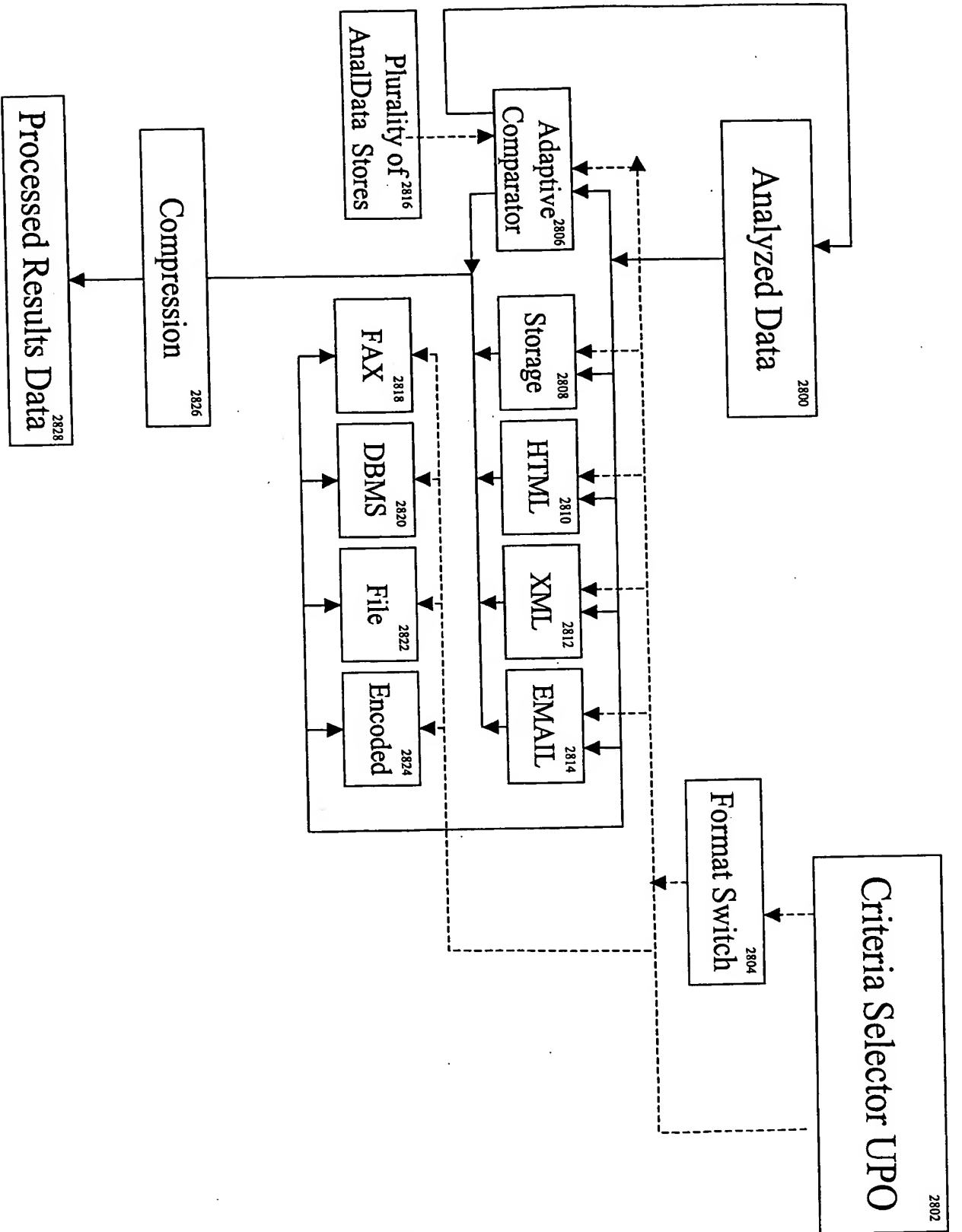
WWW Extraction Engine,
Figure 25



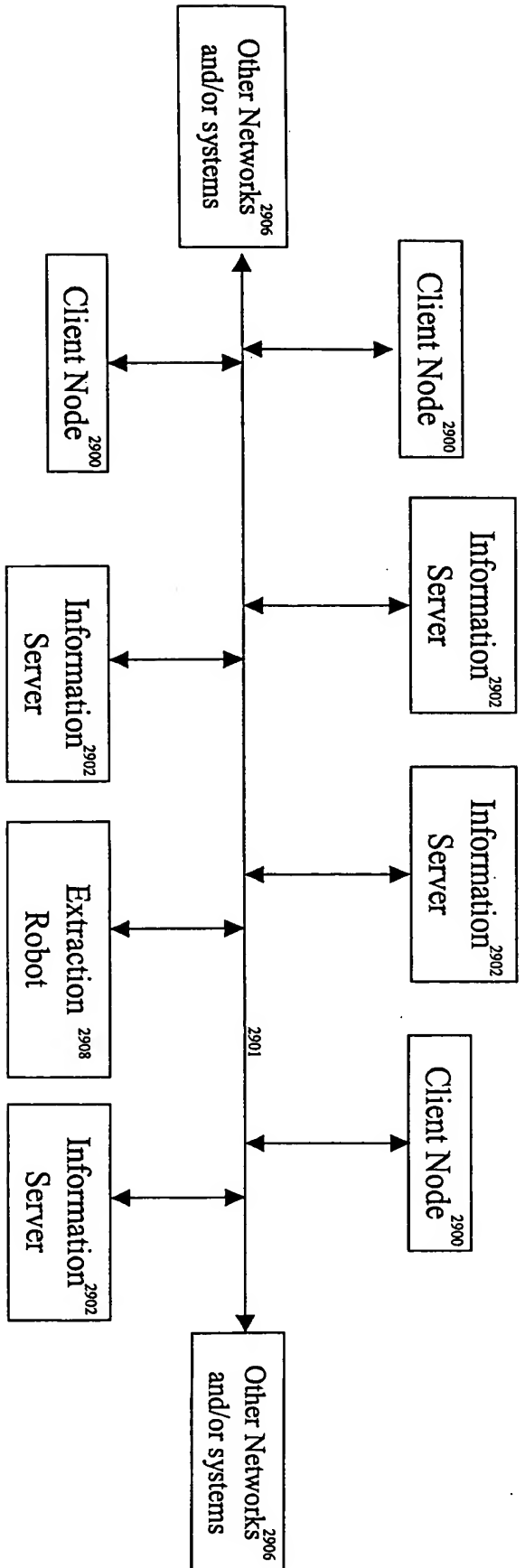
URL Download Manager
Figure 26



URL List Manager
Figure 27



Data Results Processor (DRP)
Figure 28



Examples of information servers being accessed from Human operators and mechanized devices.

Figure 29

WWW Page Load, Processing and Display Times

3002

t^p = Time to obtain, process and display text
 t^p = Time to obtain, process and display images
 t^p = Time to obtain, process and display all other items
 $t^p = t^p + t^p + t^p$ Total time to load, process and display all page items
total text image other

Human times to access URL from a Displayed Page

3004

t^h = Time to react to and access URL
response
 t^h = Time for apparatus to respond to URL access
internal
 t^h = other miscellaneous times
other
 $t^h = t^h + t^h + t^h$ Total time to react to and access a URL
min response other internal
 t^h = infinite.
max

Non-Human times to access URL from a Displayed Page

3006

t^n = Time to obtain, process and display text
text
 t^p = Time for apparatus to respond to URL access (very small)
internal
 t^n = Time to obtain, process and display all other item (tending to zero)
other
 $t^n = t^n + t^n + t^n$ Total time to react to and access a URL
min text internal other
 t^n = infinite.
max

Figure 30
Timing Definitions

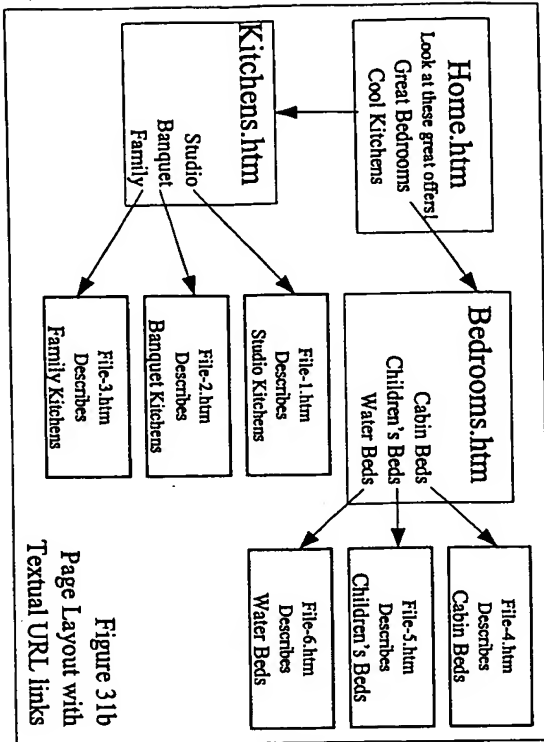
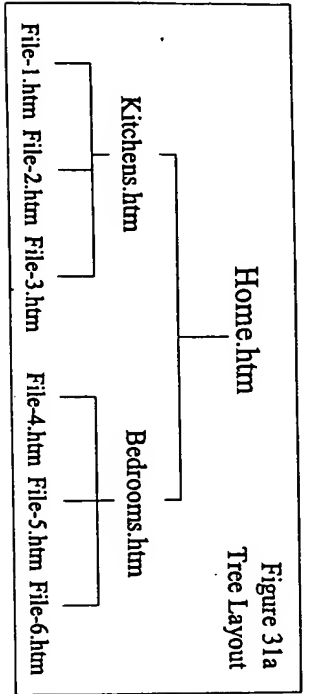


Figure 31c
Example of server access by a human operator

3110 Requester ID	3112 Data Item ID	3114 Time Stamp	3116 Type of Access
3118 193.133.51.2	/Home.htm	02/14/00 10:43:15223	Read OK
3120 193.133.51.2	/Home/Bedrooms.htm	02/14/00 10:43:17554	Read OK
3122 193.133.51.2	/Home/Bedrooms/File-4.htm	02/14/00 10:43:20332	Read OK
3124 193.133.51.2	/Home/Bedrooms.htm	02/14/00 10:43:21555	Read OK
3126 193.133.51.2	/Home/Bedrooms/File-5.htm	02/14/00 10:43:24676	Read OK
3128 193.133.51.2	/Home/Bedrooms.htm	02/14/00 10:43:26009	Read OK
3130 193.133.51.2	/Home/Bedrooms/File-6.htm	02/14/00 10:43:29876	Read OK
3132 193.133.51.2	/Home.htm	02/14/00 10:43:31000	Read OK
3134 193.133.51.2	/Home/Kitchens.htm	02/14/00 10:43:33442	Read OK
3136 193.133.51.2	/Home/Kitchens/File-1.htm	02/14/00 10:43:35998	Read OK
3138 193.133.51.2	/Home/Kitchens.htm	02/14/00 10:43:37009	Read OK
3140 193.133.51.2	/Home/Kitchens/File-2.htm	02/14/00 10:43:40030	Read OK
3142 193.133.51.2	/Home/Kitchens.htm	02/14/00 10:43:41993	Read OK
3144 193.133.51.2	/Home/Kitchens/File-3.htm	02/14/00 10:43:43554	Read OK

Figure 31d
Example of server access by a non-human operator such as an Extraction Robot

3150 Requester ID	3152 Data Item ID	3154 Time Stamp	3156 Type of Access
3158 193.133.51.2	/Home.htm	02/14/00 10:43:15000	Read OK
3160 193.133.51.2	/Home/Bedrooms.htm	02/14/00 10:43:15550	Read OK
3162 193.133.51.2	/Home/Kitchens.htm	02/14/00 10:43:15553	Read OK
3164 193.133.51.2	/Home/Bedrooms/File-4.htm	02/14/00 10:43:16000	Read OK
3166 193.133.51.2	/Home/Bedrooms/File-5.htm	02/14/00 10:43:16005	Read OK
3168 193.133.51.2	/Home/Bedrooms/File-6.htm	02/14/00 10:43:16010	Read OK
3170 193.133.51.2	/Home/Kitchens/File-1.htm	02/14/00 10:43:16020	Read OK
3172 193.133.51.2	/Home/Kitchens/File-2.htm	02/14/00 10:43:16030	Read OK
3174 193.133.51.2	/Home/Kitchens/File-3.htm	02/14/00 10:43:16040	Read OK

Figure 31
Page hierarchy with textual URL's

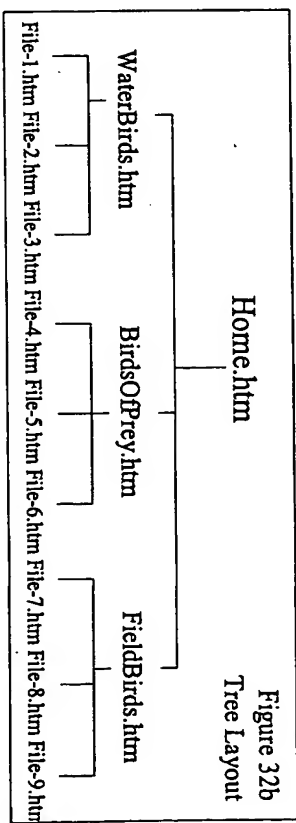
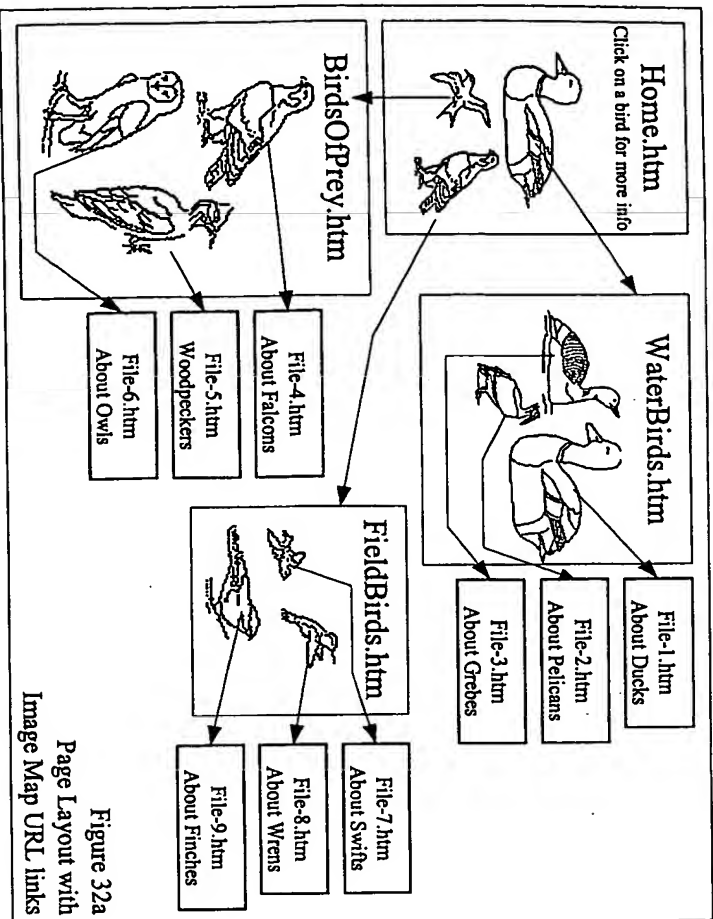


Figure 32
Page Hierarchy with Image Maps

Reference times to access a URL

3300 $t_{\text{response}}^{\text{ref}} = \text{Time to react to and access URL}$

3302 $t_{\text{internal}}^{\text{ref}} = \text{Time for apparatus to respond to URL access}$

3304 $t_{\text{other}}^{\text{ref}} = \text{other miscellaneous times}$

3306 $t_{\text{min}}^{\text{ref}} = t_{\text{response}}^{\text{h}} + t_{\text{internal}}^{\text{h}} + t_{\text{other}}^{\text{h}}$ Total time to react to and access a URL.

3308 $t_{\text{max}}^{\text{ref}} = \text{infinite.}$

Figure 33a

Timing Definitions

3310 $\Delta \text{hit}_n = \text{hit}_{n+1} - \text{hit}_n$ Time difference between 2 hits

3312 $t_{\text{hit_av}} = \sum_{n=0}^n \Delta \text{hit}_n / n$ Average time for hits n_0 to n

3314 $t_{\text{hit_min}}^{n_0 \rightarrow n}$ Minimum hit time for hits n_0 to n

3316 $t_{\text{hit_max}}^{n_0 \rightarrow n}$ Maximum hit time for hits n_0 to n

hits n_0 is the first hit in a sequence, eg: B320
hit n is the last hit in a sequence, eg: B344

Figure 33b

Human Signature Definitions

3330 $t_{\text{min}}^{\text{h_sig}} = t_{\text{min}}^{\text{hit}} - t_{\text{min}}^{\text{ref}}$ Difference between hit time and reference minimum value

3332 $t_{\text{max}}^{\text{h_sig}} = t_{\text{max}}^{\text{hit}} - t_{\text{max}}^{\text{ref}}$ Difference between hit time and reference maximum value

3334 $t_{\text{av}}^{\text{h_sig}} = t_{\text{av}}^{\text{hit}} - t_{\text{av}}^{\text{ref}}$ Difference between hit time and reference average value

3336 $t_{\text{delta}}^{\text{h_sig}} = (t_{\text{min}}^{\text{h_sig}} + t_{\text{av}}^{\text{h_sig}} + t_{\text{max}}^{\text{h_sig}}) / 3$ Average for all human signature values

Figure 33c

Figure 33
Signature Calculations

Signature Proximity Terms

3400 $t_{\min}^{\text{prox}} = t_{\min}^{\text{h_sig}} - t_{\min}^{\text{r_ref}}$ Difference between human minimum signature and robot reference minimum values

3402 $t_{\text{av}}^{\text{prox}} = t_{\text{av}}^{\text{h_sig}} - t_{\text{av}}^{\text{r_ref}}$ Difference between human average signature and robot reference average values

3404 $t_{\max}^{\text{prox}} = t_{\max}^{\text{h_sig}} - t_{\max}^{\text{r_ref}}$ Difference between human maximum signature and robot reference maximum values

3406 $t_{\min}^{\text{prob}} = t_{\min}^{\text{prox}} \rightarrow t_{\min}^{\text{r_ref}}$ higher probability of robot hit. Decreasing positive values and increasing negative values indicate higher probability.

3408 $t_{\text{av}}^{\text{prob}} = t_{\text{av}}^{\text{prox}} \rightarrow t_{\text{av}}^{\text{r_ref}}$ higher probability of robot hit. Decreasing positive values and increasing negative values indicate higher probability.

3410 $t_{\max}^{\text{prob}} = t_{\max}^{\text{prox}} \rightarrow t_{\max}^{\text{r_ref}}$ higher probability of robot hit. Decreasing positive values and increasing negative values indicate higher probability.

$t_{\text{r_ref}}$ denotes a robot (ie non-human) hit reference term
 $t_{\text{h_ref}}$ denotes a human hit reference term

Figure 34a

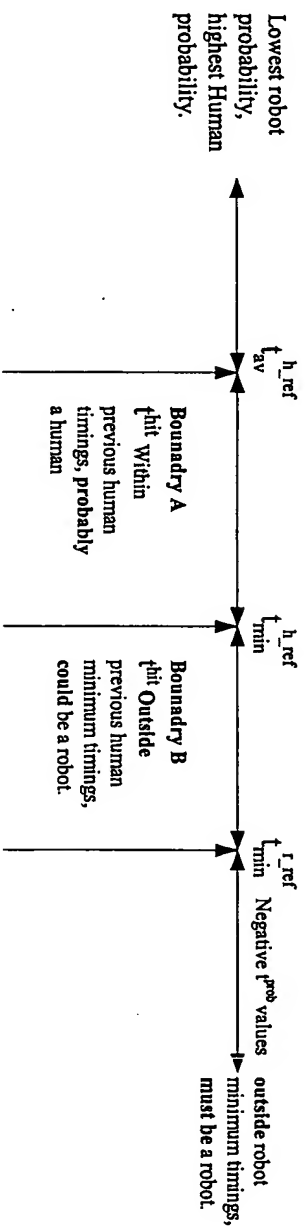


Figure 34b

Figure 34
 Signature Proximity Terms

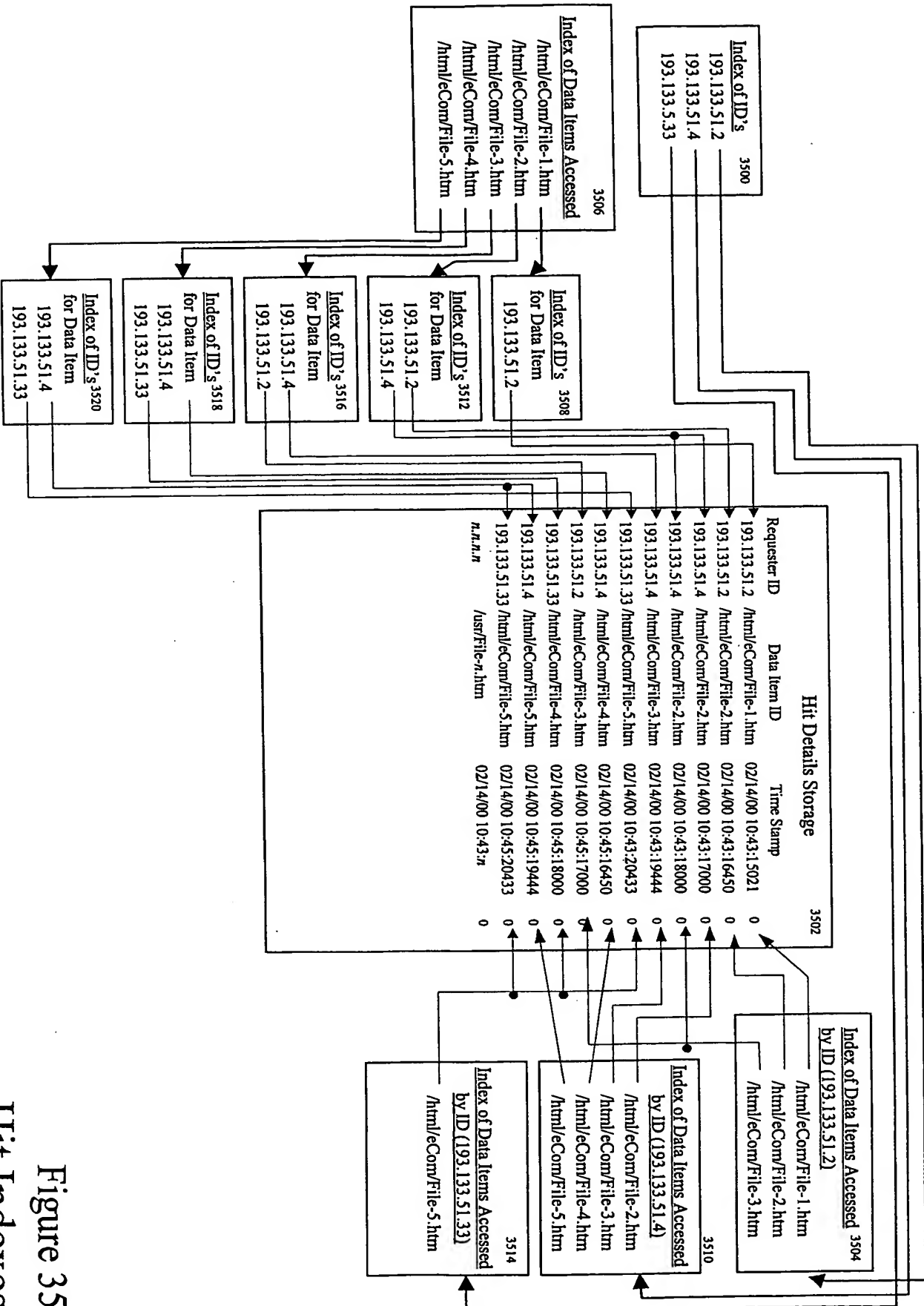
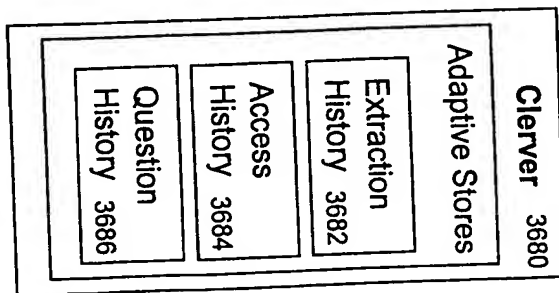
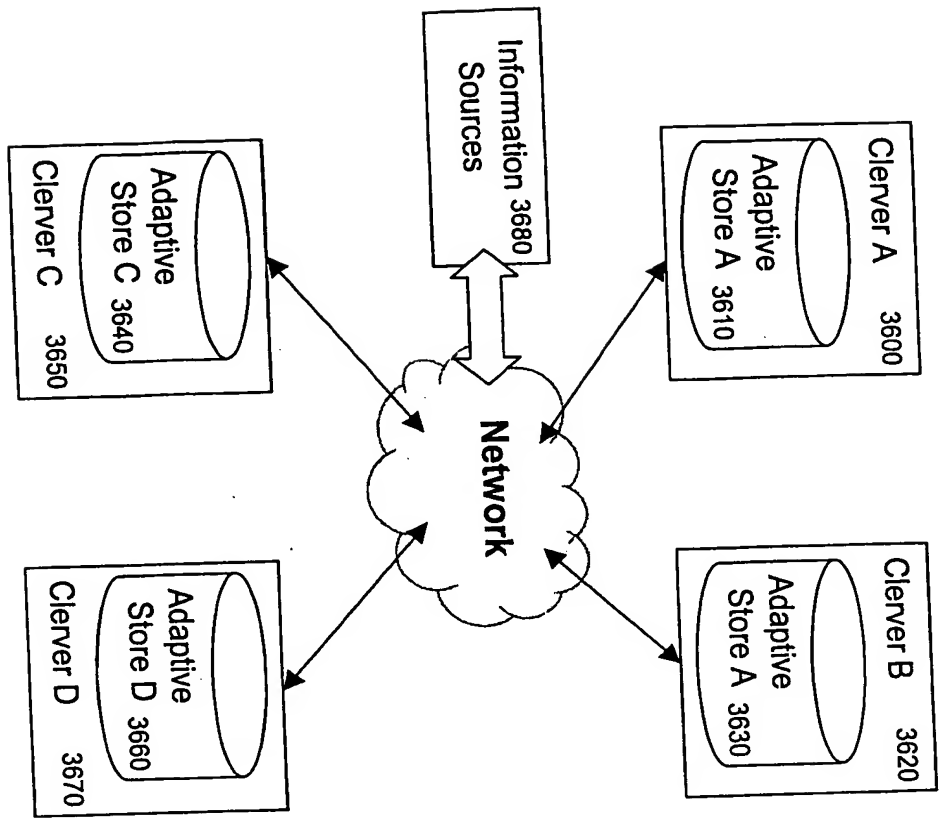
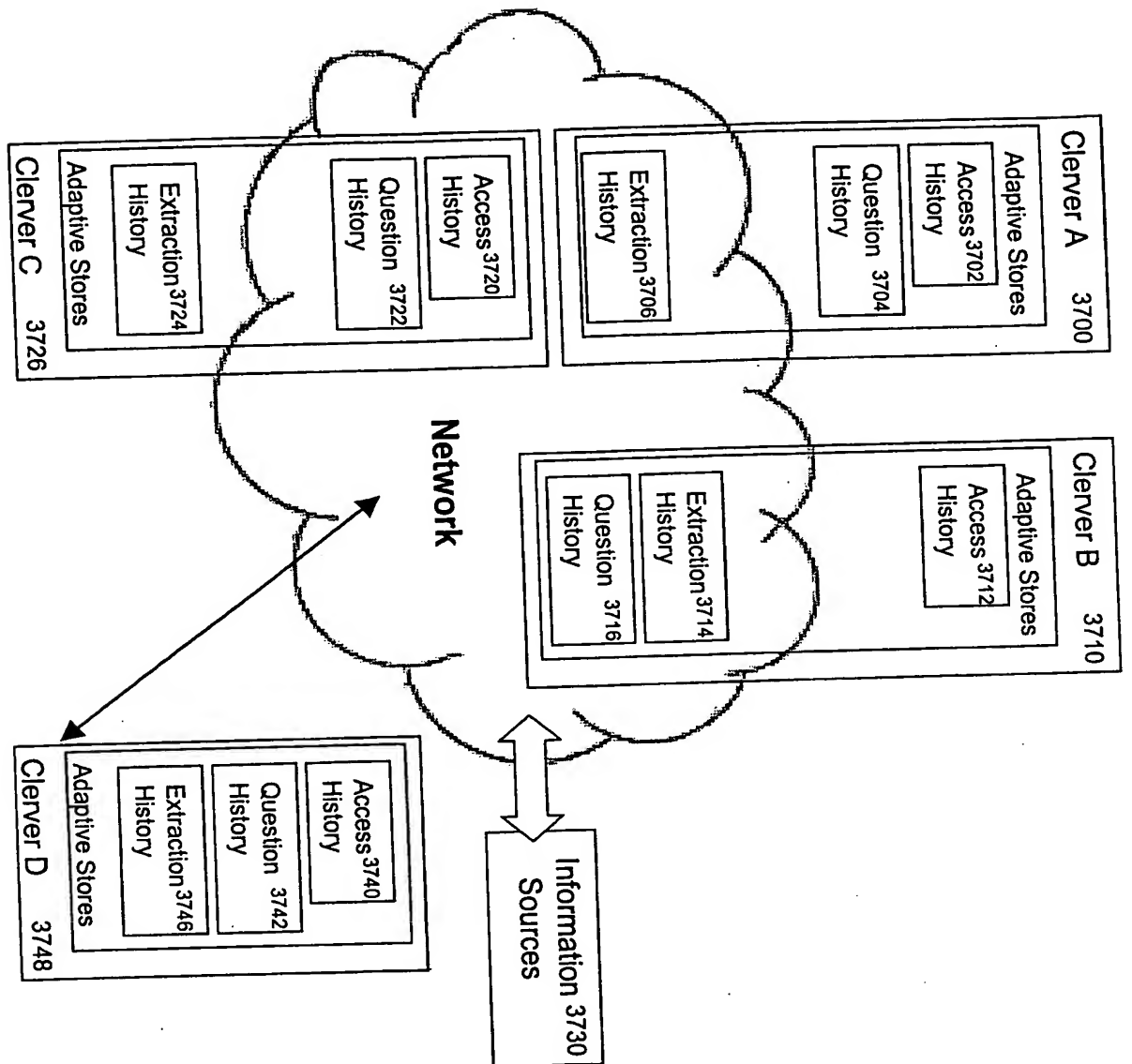


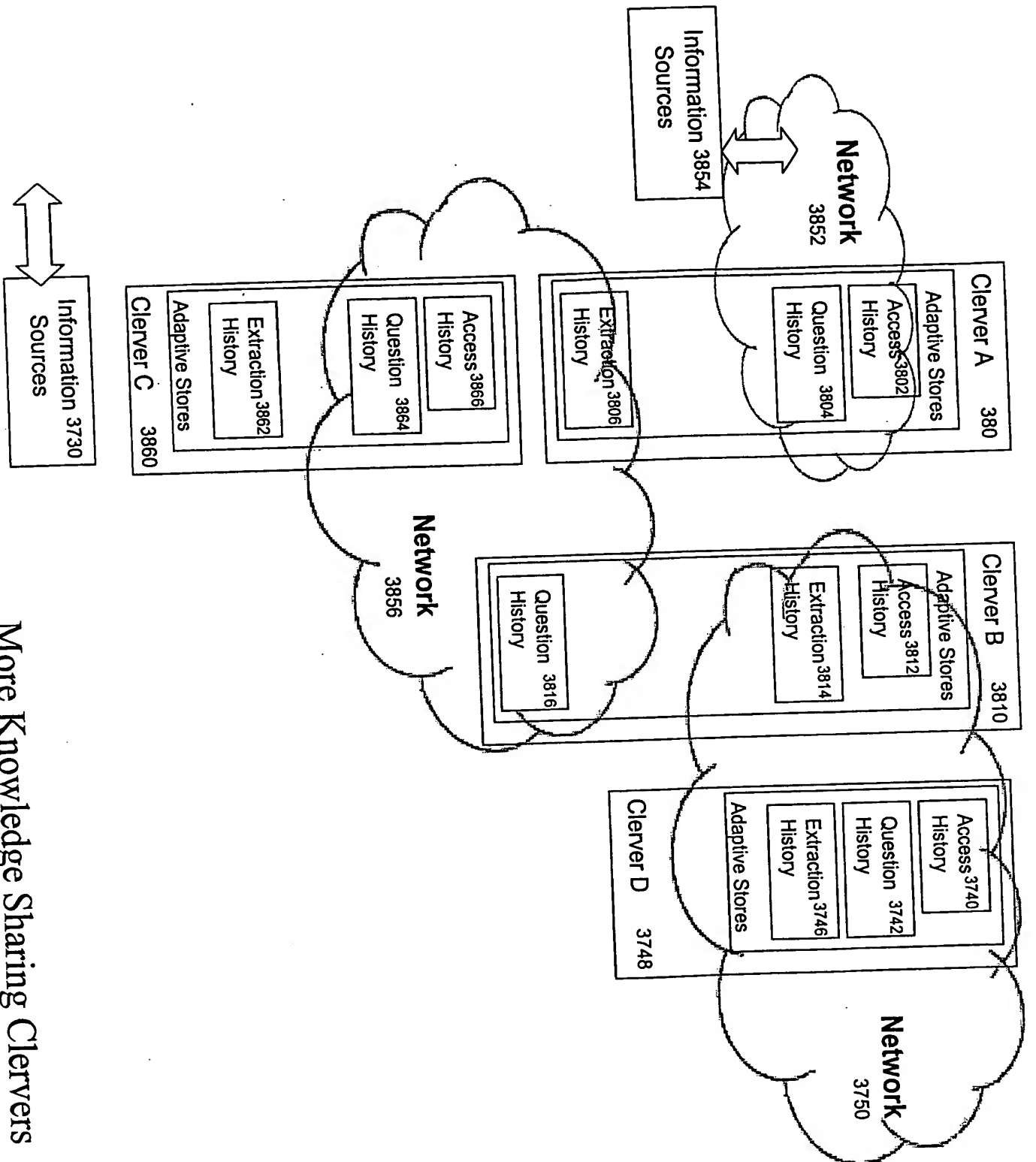
Figure 35
Hit Indexes



Basic Clever
Figure 36



Knowledge Sharing Clervers Figure 37



More Knowledge Sharing Clevers Figure 38

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